

**OPERATING & MAINTENANCE MANUAL  
WASCOMAT JUNIOR W 75  
WASCOMAT SUPER JUNIOR W 105  
WASCOMAT SENIOR W 125  
WASCOMAT GIANT W 185  
HI-TEK**

471 1562-67

**WARNING:** ALL OPERATING AND MAINTENANCE PROCEDURES SHOWN ON THE NEXT PAGE OF THIS MANUAL MUST BE FOLLOWED DAILY FOR PROPER OPERATION OF YOUR WASCOMAT MACHINE.

PLEASE ENTER THE FOLLOWING INFORMATION AS IT APPEARS ON THE MACHINE(S) DATA PLATE(S).

<b>MACHINE TYPE OR MODEL</b>	
<b>MACHINE SERIAL NUMBER(S)</b>	
<b>ELECTRICAL CHARACTERISTICS:</b> _____ VOLTS, _____ PHASE, _____ HZ.	

MAKE CERTAIN TO KEEP THIS MANUAL IN A SECURE PLACE FOR FUTURE REFERENCE.



## **NOTICE TO: OWNERS, OPERATORS AND DEALERS OF WASCOMAT MACHINES**

IMPROPER INSTALLATION AND INADEQUATE MAINTENANCE, POOR HOUSEKEEPING AND WILLFUL NEGLECT OR BYPASSING OF SAFETY DEVICES MAY RESULT IN SERIOUS ACCIDENTS OR INJURY. TO ASSURE THE SAFETY OF CUSTOMERS AND/OR OPERATORS OF YOUR MACHINE, THE FOLLOWING MAINTENANCE CHECKS MUST BE PERFORMED ON A DAILY BASIS.

1. Prior to operation of the machine, check to make certain that all operating instructions and warning signs are affixed to the machine and legible. (See the following page of this manual for description and location of the signs.) Missing or illegible ones must be replaced immediately. Be sure you have spare signs and labels available at all times. These can be obtained from your dealer or Wascomat.

2. Check the door safety interlock, as follows:

- (a) OPEN THE DOOR of the machine and attempt to start in the normal manner:

For coin-operated models, insert the proper coins to start the machine.

For manually operated models, place the ON-OFF switch in the ON position and press the Start switch.

For FL and EX models, insert a program card, turn the starter knob to the Start position and place the ON-OFF switch in the ON position.

For HI-TEK microprocessor models, turn the key switch to the RUN position, choose a program and press the START button.

For SELECTA 28 models, select a wash program and press the Start button.

### **THE MACHINE(S) SHOULD NOT START !**

- (b) CLOSE THE DOOR to start machine operation and, while it is operating, attempt to open the door without exerting extreme force on the door handle. The door should remain locked!

If the machine can start with the door open, or can continue to operate with the door unlocked, the door interlock is no longer operating properly. The machine must be placed out of order and the interlock immediately replaced.  
(See the door interlock section of the manual.)

3. DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO BYPASS OR REWIRE ANY OF THE MACHINE SAFETY DEVICES AS THIS CAN RESULT IN SERIOUS ACCIDENTS.
4. **Be sure to keep the machine(s) in proper working order:** Follow **all** maintenance and safety procedures. Further information regarding machine safety, service and parts can be obtained from your dealer or from Wascomat through its Teletech Service Telephone - 516/371-0700.

All requests for assistance must include the model, serial number and electrical characteristics as they appear on the machine identification plate. Insert this information in the space provided on the previous page of this manual.

5. **WARNING:** DO NOT OPERATE MACHINE(S) WITH SAFETY DEVICES BYPASSED, REWIRED OR INOPERATIVE! DO NOT OPEN MACHINE DOOR UNTIL DRUM HAS STOPPED ROTATING!



## SAFETY AND WARNINGS SIGNS

Replace If Missing Or Illegible

One or more of these signs must be affixed on each machine as indicated, when not included as part of the front instruction panel.

### LOCATED ON THE OPERATING INSTRUCTION SIGN OF THE MACHINE:

#### CAUTION

1. Do not open washer door until cycle is completed, operating light is off, and wash cylinder has stopped rotating.
2. Do not tamper with the door safety switch or door lock.
3. Do not attempt to open door or place hands into washer to remove or add clothes during operation. This can cause serious injury.

#### PRECAUCION

1. No abra la puerta de la máquina lavadora sino hasta que la máquina haya terminado su ciclo, la luz operativa esté apagada y el cilindro de lavado haya completamente terminado de girar.
2. No interfiera o manipule el switch o la cerradura de la puerta.
3. No trate de abrir la puerta o meta las manos dentro de la máquina para meter o sacar ropa mientras la máquina está en operación, pues puede resultar seriamente herido.

MACHINE SHOULD NOT BE USED BY CHILDREN

LAS MÁQUINAS NO DEBEN SER USADAS POR NIÑOS

### LOCATED AT THE REAR OF THE MACHINE:

## INSTALLATION AND MAINTENANCE WARNINGS

1. This machine **MUST** be securely bolted to an uncovered concrete floor, according installation instructions, to reduce the risk of fire and to prevent serious injury, or damage to the machine.
2. When installed on a floor of combustible material, the floor area below this machine must be covered by a metal sheet extending to the outer edges of the machine.
3. This machine **MUST** be connected to a dedicated electrical circuit to which no other lighting unit or general purpose receptacle is connected.
4. This machine **MUST** be serviced and operated in compliance with manufacturer's instructions. **CHECK DOOR LOCKS EVERY DAY FOR PROPER OPERATION TO PREVENT INJURY OR DAMAGE. IF THE DOOR LOCK FAILS TO OPERATE PROPERLY, PLACE THE MACHINE OUT OF ORDER UNTIL THE PROBLEM IS CORRECTED.**
5. Disconnect power prior to servicing of machine.
6. To remove top panel for service on W/FL 75-185 first remove screws at rear. **Be certain to reinstall screws when remounting the top panel.**

MANUFACTURED BY WASCATOR  
DISTRIBUTED BY WASCOMAT INWOOD, NEW YORK, USA

471 76 62 02

### LOCATED ON THE DOOR:

#### WARNING !

DO NOT ATTEMPT TO OPEN DOOR  
UNTIL PROGRAM HAS FINISHED AND  
DRUM HAS STOPPED ROTATING.

471 7651-17

If you need to order more safety or warning signs, call Wascomat's parts department at 516-371-2000, or call your local dealer.

# Wascomat Junior W75 • Wascomat Super Junior W105 Wascomat Senior 125 • Wascomat Giant W185

---

## Contents

Introduction .....	1
Technical data .....	2
Installation .....	7
Safety rules .....	14
Mechanical and electrical design .....	15
Procedure .....	32
Programming .....	34
Service programs .....	38
Wash programs .....	40
Service information .....	48
Maintenance .....	49
Trouble-shooting .....	50

The manufacturer reserves the right to make changes to design and material specifications.

### **Safety instructions**

- The machine is designed for water washing only.
- The machine must not be used by children.
- All installation operations are to be carried out by qualified personnel. Licensed personnel are necessary for all electric power wiring.
- The interlock of the door must be checked daily for proper operation and must not be bypassed.
- All seepage in the system, due to faulty gaskets etc., must be repaired immediately.
- All service personnel must be fully familiar with the operating manual before attempting any repair or maintenance of the machine.
- The machine must not be sprayed with water, otherwise short circuiting may occur.
- Fabrics softener with volatile or inflammable fluids are not to be used in the machine.

## Introduction

**F** The Wascomat Junior, Super Junior, Senior and Giant models washer/extractor has been developed to cover the heavy duty requirements of hotels, motels, nursing homes, hospitals, professional laundries, restaurants, airlines, steamships, schools, colleges and all on-premises laundries where high quality automatic washing and quick formula variation are required.

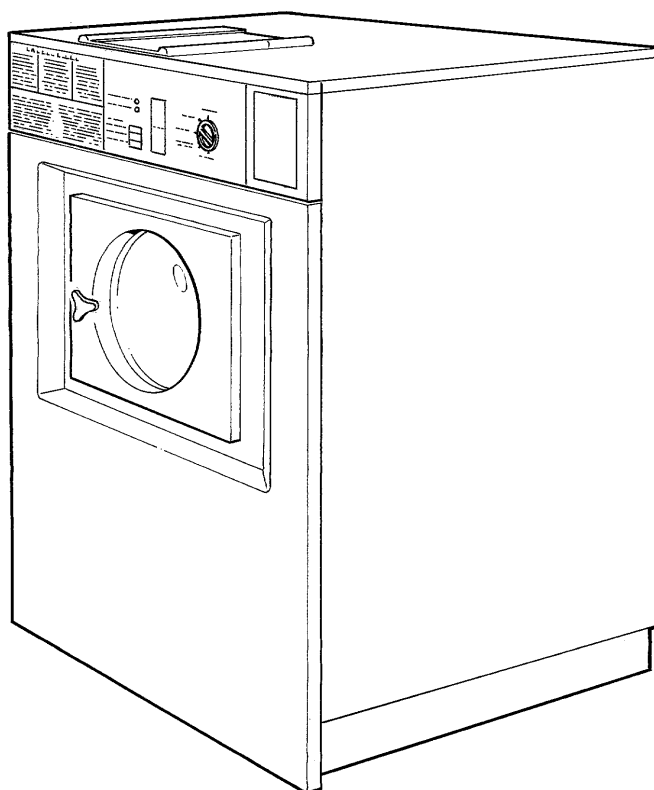
The machines offers five pre-set wash programs Hot, Warm, Cold, Permanent Press and Delicate which can be selected by turning the program selector on the front panel. These programs are designed to suit a variety of fabrics and offer different water temperatures, water levels, wash periods and supply injection. The machine is designed for connection to hot and cold water supplies.

All parts of the machine which come into contact with the items being washed are made of heavy gauge surgical stainless steel, ensuring long life and lasting beauty, as well as full protection for no-iron fabrics. All electrical components are made accessible for servicing by simply removing the top panel.

This manual contains a technical description of the Wascomat Junior, Super Junior, Senior and Giant model machines and instructions for its installation, operation and maintenance. Together with the wiring diagram which accompanies each individual machine it should be kept in a safe place for easy reference.

When ordering spare parts or contacting the manufacturer for any purpose always give the machine serial number, model, voltage and other electrical characteristics appearing on the nameplate at the rear of the machine.

1



## Technical data

---

### Technical data Wascomat Junior W75

Dry load capacity	up to	18 lbs
Overall dimensions	Width	660 mm 26 in
	Depth	649 mm 25 9/16 in
	Height	1050 mm 41 11/32 in
	Net weight	107 kg 235 lbs
	Dyn force	1.2 ± 2.6 kN 290±620 lbs. force
Crated dimensions	Volume	0.62 m <sup>3</sup> 21.9 cu.ft
	Weight	117 kg 257 lbs
Inner drum	Diameter	520 mm 20 1/2 in
	Depth	356 mm 14 in
	Volume	75 litre 2.7 cu.ft
Speed	Wash	54 r.p.m.
	Extraction	543 r.p.m.
G-factor	During wash	0.8
	During extraction	90
Motor speed	During wash	344 r.p.m.
	During extraction	3514 r.p.m.
Voltage requirements	Choose:	
	120 V 1-phase 60 Hz or	
	208-240 V 3-Phase 60 Hz	
Rated output power	Motor, wash, 3-phase	110 W
		0.15 HP
	Motor, extrac., 3-phase	550 W
		0.75 HP
	Motor, wash, 1-phase	110 W
		0.15 HP
	Motor, extrac., 1-phase	370 W
		0.5 HP
Overcurrent protection	Three-phase	15 A
	Single-phase	20 A

### Water connections

Recommended water pressure	2-6 kp/cm <sup>2</sup>	25-85 psi
Hose connection, water	20 mm	3/4 in
Hose connection, drain	74 mm	3 in

## Technical data Wascomat Super Junior W105

Dry load capacity	up to	25 lbs
Overall dimensions	Width	660 mm 26 in
	Depth	766 mm 30 5/32 in
	Height	1050 mm 41 11/32 in
	Net weight	147 kg 323 lbs
Crated dimensions	Dyn force	1.7 ±3.4 kN 408±816 lbs. force
	Volume	0.65 m <sup>3</sup> 23 cu. ft
	Weight	158 kg 348 lbs
Inner drum	Diameter	520 mm 20 1/2 in
	Depth	473 mm 18 5/8 in
	Volume	100 litre 3.6 cu.ft
Speed	Wash	54 r.p.m.
	Extraction	543 r.p.m.
G-factor	During wash	0.8
	During extraction	90
Motor speed	During wash	344 r.p.m.
	During extraction	3514 r.p.m.
Voltage requirements	Choose:	
	120 V 1-phase 60 Hz or	
	208-240 V 3-Phase 60 Hz	
Rated output power	Motor, wash 3-phase	150 W
		0.2 HP
	Motor, extrac. 3-phase	900 W
		1.2 HP
	Motor, wash 1-phase	140 W
		0.18 HP
	Motor, extrac. 1-phase	550 W
		0.75 HP
Overcurrent protection	Three-phase	15 A
	Single-phase	20 A

## Water connections

Recommended water pressure	2-6 kp/cm <sup>2</sup>	25-85 psi
Hose connection, water	20 mm	3/4"
Hose connection, drain	74 mm	3"

## Technical data

---

### Technical data Wascomat Senior W125

Dry load capacity	up to	35 lbs
Overall dimensions	Width	745 mm 29 11/32 in
	Depth	995 mm 39 in
	Height	1196 mm 47 3/12 in
	Net weight	210 kg 462 lbs
Crated dimensions	Dyn force	2.4±4.8 576±1152 lbs. force
	Volume	1.06 m <sup>3</sup> 39 cu.ft.
	Weight	222 kg 489 lbs
Inner drum	Diameter	620 mm 24 1/2 in
	Depth	520 mm 20 1/2 in
	Volume	157 litre 5.65 cu.ft
Speed	Wash	52 r.p.m.
	Extraction	500 r.p.m.
G-factor	During wash	0.9
	During extraction	87
Motor speed	During wash	330 r.p.m.
	During extraction	3450 r.p.m.
Voltage requirements	Choose:	
	120 V 1-phase 60 Hz or	
	208-240 V 3-Phase 60 Hz	
Rated power	Motor, wash 3-phase	300 W
		0.4 HP
	Motor, extrac. 3-phase	1300 W
		1.8 HP
	Motor, wash 1-phase	270 W
		0.45 HP
	Motor, extrac. 1-phase	1500 W
		2.0 HP
Overcurrent protection	Three-phase	15 A
	Single-phase	25 A

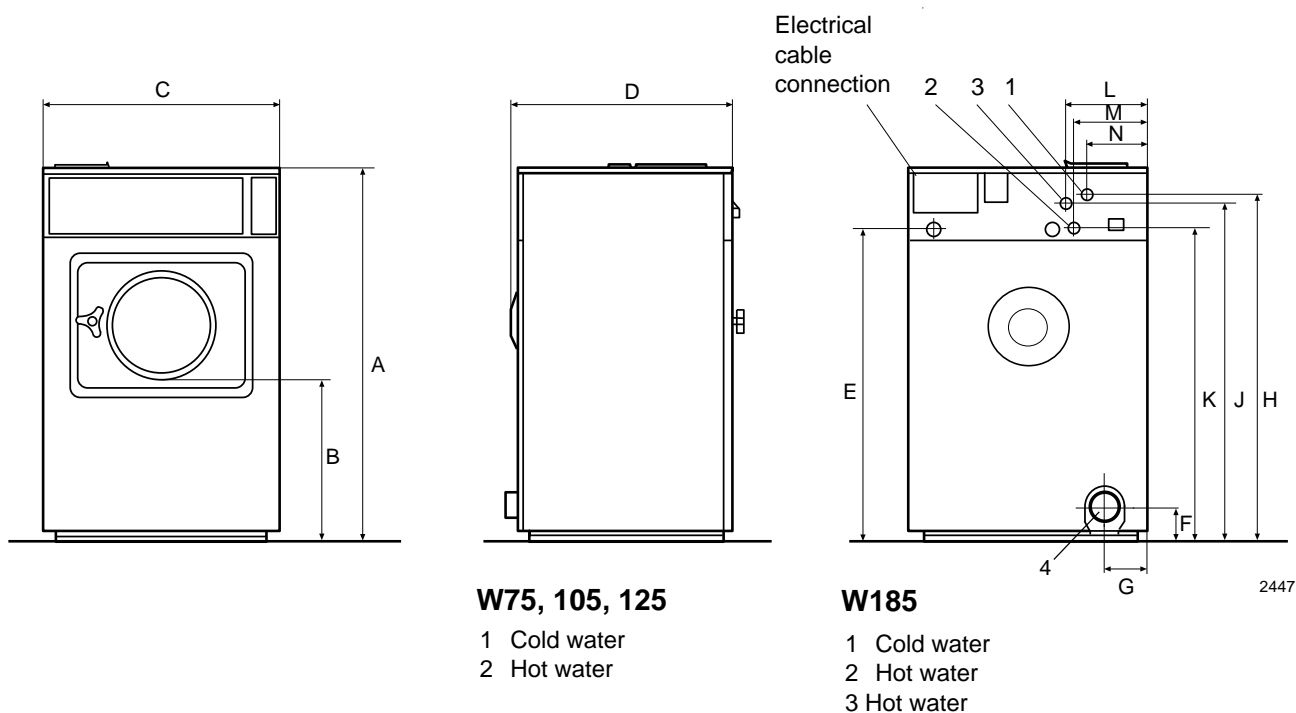
### Water connections

Recommended water pressure	2-6 kp/cm <sup>2</sup>	25-85 psi
Hose connection, water	20 mm	3/4"
Hose connection, drain	74 mm	3"

## Technical data Wascomat Giant W 185

Dry load capacity	up to	50 lbs
Overall dimensions	Width	827 mm 32 5/8 in
	Depth	1085 mm 42 3/4 in
	Height	1315 mm 51 3/4 in
	Net weight	264 kg 582 lbs
	Dyn force	3.1±5.2 kN 744±1248 lbs. force
Crated dimensions	Volume	1.42 m <sup>3</sup> 50.2 cu.ft.
	Weight	275 kg 606 lbs
Inner drum	Diameter	700 mm 27 9/16 in
	Depth	600 mm 23 5/8 in
	Volume	230 litre 8.1 cu.ft
Speed of rotation	Wash	45 r.p.m.
	Extraction	455 r.p.m.
G-factor	During wash	0.8
	During extraction	81
Motor speed	During wash	360 r.p.m
	During extraction	3480 r.p.m
Voltage requirements	Choice:	
	208-240 V 1-phase 60 Hz	
	or	
Rated output power	208-240 V 3-Phase 60 Hz	
	Motor, wash 3-phase	400 W
		0.55 HP
	Motor, extract. 3-phase	2000 W
		2.7 HP
	Motor, wash 1-phase	400 W
		0.55 HP
	Motor, extract. 1-phase	1800 W
Overcurrent protection		2.4 HP
	Three-phase	15 A
	Single-phase	25 A
<b>Water connections</b>		
Recommended water pressure	2-6 kp/cm <sup>2</sup>	25-85 psi
Hose connection, water	20 DN	3/4"
Hose connection, drain	74 mm	3"

## Outline and dimensions



	W75		W105		W125		W185	
	mm	inches	mm	inches	mm	inches	mm	inches
A	1050	41 11/32	1050	41 11/32	1196	47 3/32	1315	51 3/4
B	437	17 7/32	437	17 7/32	465	18 5/16	540	21 1/4
C	660	26	660	26	775	30 1/2	860	33 27/32
D	678	26 3/4	795	31 10/32	995	39 3/16	1085	42 11/16
E	895	35	895	35	1040	41	1160	45 3/4
F	100	3 15/16	100	3 15/16	100	3 15/16	100	3 15/16
G	125	4 15/16	125	4 15/16	270	10 5/8	260	10 1/4
H	980	38 1/2	980	38 1/2	1130	44 1/2	1250	49 7/32
J	—	—	—	—	—	—	1230	48 7/16
K	890	35	890	35	1035	40 3/4	1155	45 1/2
L	—	—	—	—	—	—	225	8 7/8
M	205	8	205	8	205	8	205	8
N	160	6 5/16	160	6 5/16	160	6 5/16	160	6 5/16

## Installation

### Machine foundation

The machines are designed to be bolted in position to a concrete floor or specially prepared concrete foundation. A template showing the size of the foundation and positioning of the foundation bolts is delivered with each machine.

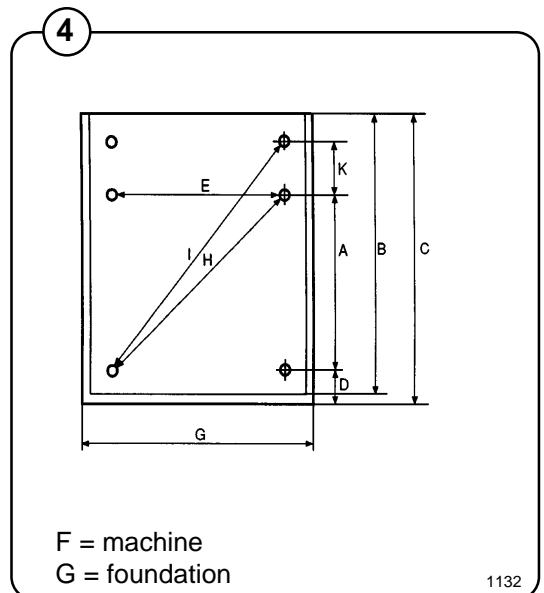
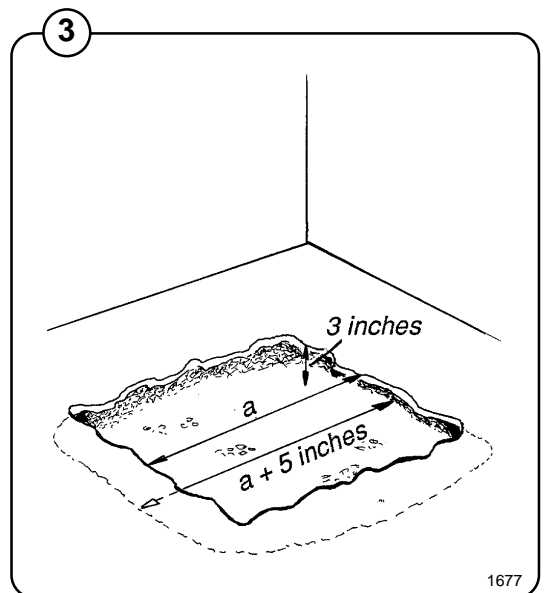
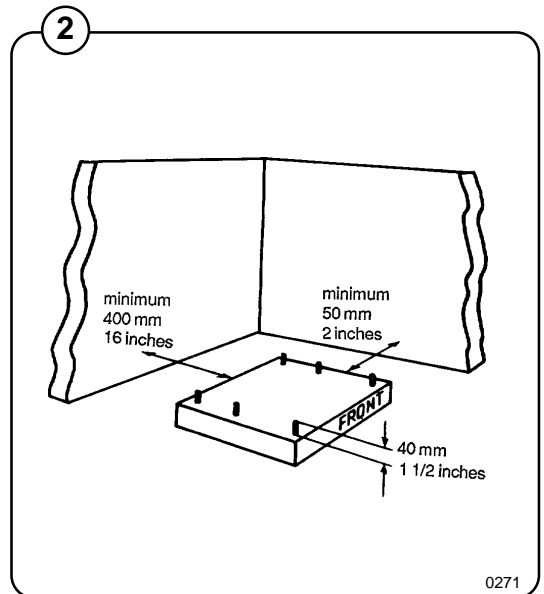
For installation on an existing concrete floor, the floor must be at least 8" thick and of good quality. If the floor does not meet these requirements, then a 6-8" high concrete foundation should be made. A prefabricated steel base is available for mounting of machines without an additional foundation.

Follow the instructions below when making a concrete foundation:

- F** 1. Decide where to place the machine and consider maintenance requirements, i.e. determine a suitable distance from the rear of the foundation to the wall, and the distance from the foundation to the nearest side wall. The distance should be at least 16 and 12 inches, respectively.
- F** 2. Break up the floor to a depth of 3 inches, making sure that the sides of the hole slope inwards - the bottom of the hole should be 5 inches longer than the upper length.
3. Wet the hole well. Brush the bottom and sides with cement grout.
4. Prepare a casing and fill with concrete to form foundation. Make sure the foundation is level.
- F** 5. Use the template to position the foundation bolts correctly - bolts are to extend 1 1/2" above concrete.

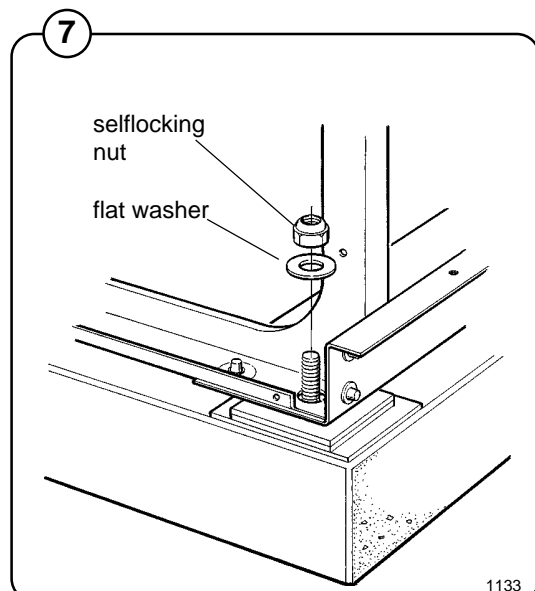
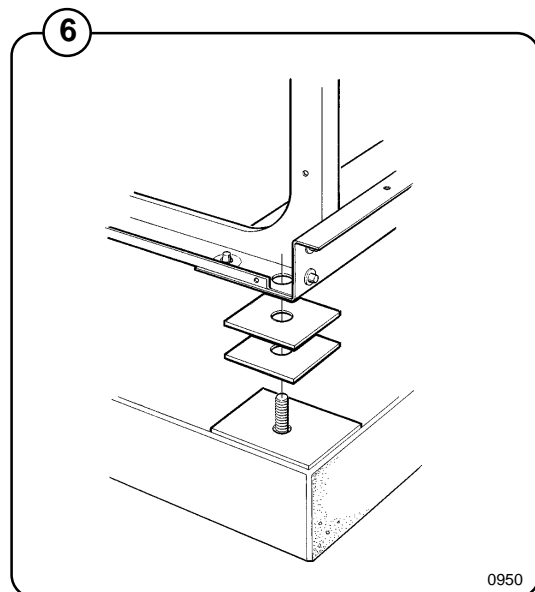
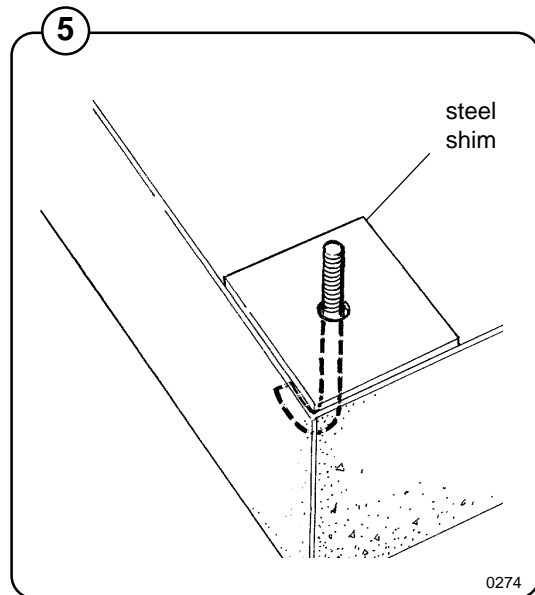
NOTE: A prefabricated steel frame, designed to be placed in the concrete instead of the individual mounting bolts, is available.

	W75		W105		W125		W185	
	mm	inches	mm	inches	mm	inches	mm	inches
A	364	14 11/32	481	18 15/16	508	20	600	23 2/3
B	593	23 11/32	710	27 15/16	910	35 13/16	960	37 3/4
C	635	25	747	29 13/32	950	37 13/32	1000	39 3/8
D	87	3 7/16	87	3 7/16	102	4	102	4
E	530	20 7/8	530	20 7/8	600	23 5/8	700	27 9/16
F	660	26	660	26	745	29 11/32	827	32 5/8
G	700	27 9/16	700	27 9/16	800	31 1/2	880	34 2/3
H	643	25 5/16	715,6	28 3/16	786	30 15/16	922	36 1/8
I	-	-	-	-	991	39	1090	42 7/8
K	-	-	-	-	281	11	236	9 7/16



### Mechanical installation

- F**
- Place wide steel shims on the concrete foundation over the bolts.
  - Lift the machine and lower it in position. Never use the door or the door handle to lift or lower the machine.
  - Check that the machine is level front-to-rear and side-to-side and standing firmly on the four (W75, W105) or six (W125, W185) supporting points. Spacing washers must be mounted if one or more of these points is not resting against the floor/foundation.
- F**
- Place flat washers over the foundation bolts and secure the machine in position by tightening the self-locking nuts. See illustration below.
  - Check and tighten the nuts every week for the first month.



## Electrical installation

**F** Although the machines are fitted with a thermal overload in the motor windings a separate three-phase common-trip circuit breaker must be installed for all three-phase machines.

For proper overcurrent protection, check the data plate at the rear of the machine. Also consult local electrical code for special requirements.

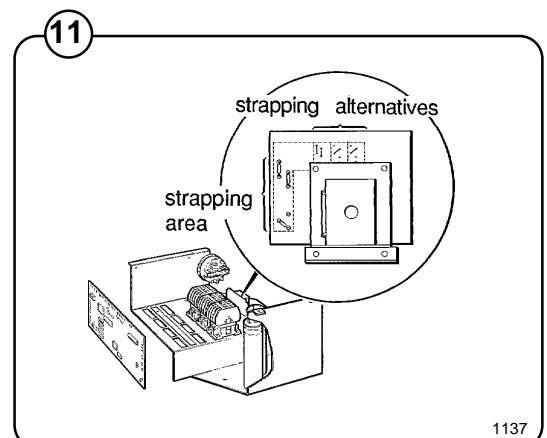
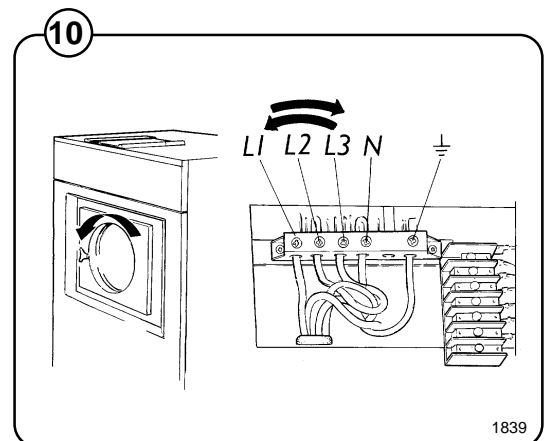
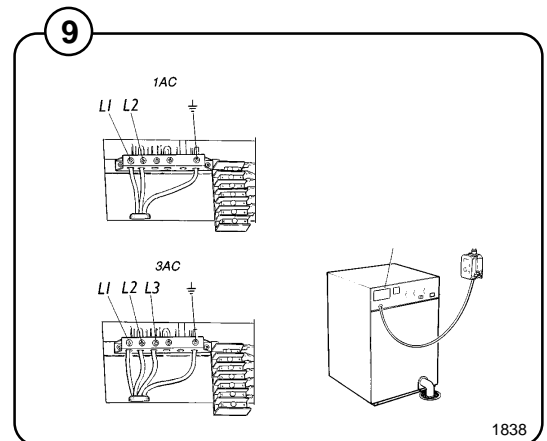
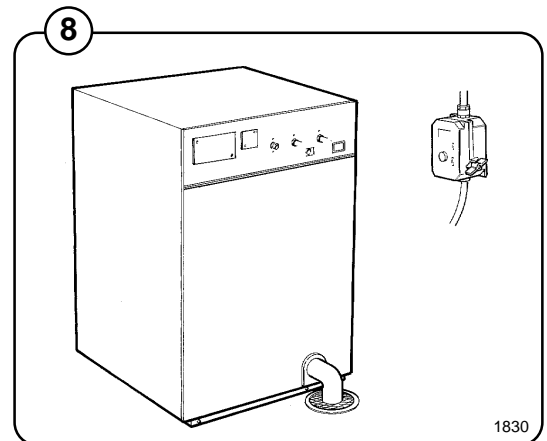
**F** Connect L1, L2, L3 and ground wires according to the markings of the terminal block. The cable is to hang in a large loose loop, supported by the clip of the terminal block.

After installation, do the following:

Check the incoming power for a high voltage leg. If present, connect that line to L2 on the terminal block.

**F** Start the machine and check that the drum rotates in the proper direction during extraction, i.e. counter-clockwise when seen from the front. If the drum rotates in the wrong direction interchange line L1 and L3 at the power connection terminal.

**F** Check that the transformer on the control unit is correctly strapped in relation to the incoming voltage. The different alternatives is printed on the transformer circuit board.



## Water connection

### NOTE

**All plumbing must conform to national and local plumbing codes.**

Incoming water lines do not require non-return or back-suction valves, as the machine is already fitted with a siphon breaker. However, all incoming lines must be fitted with shut-off valves.

Fig.

11

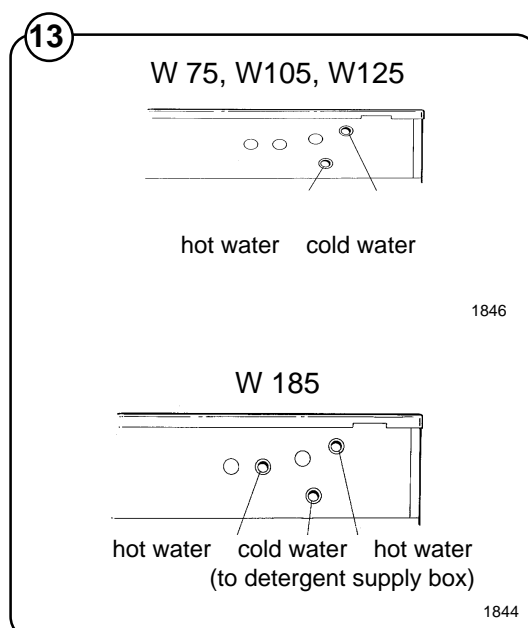
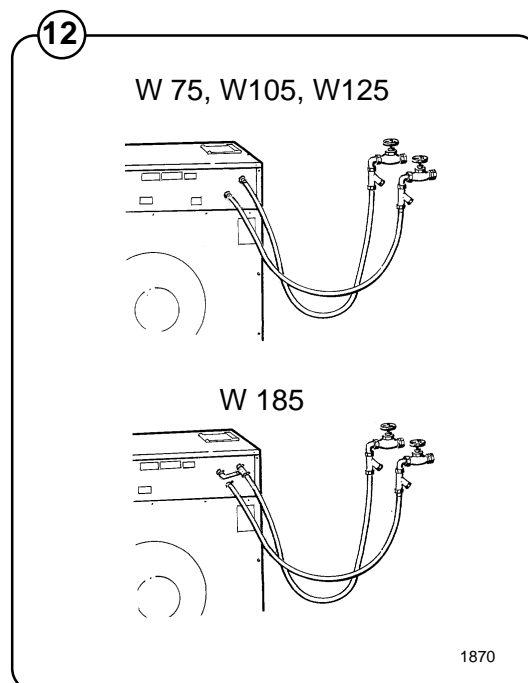
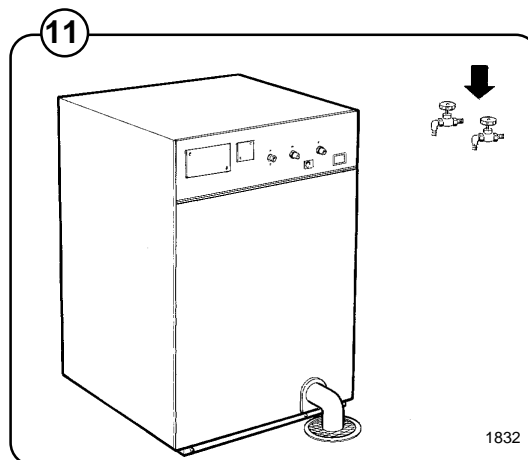
Fig.

12

Fig.

13

- Water inlets are labelled for hot and cold water connection.
- Flush the water system thoroughly and check that the filter at the machine inlet is fitted correctly.
- Connect the machine to the water mains with 3/4" reinforced rubber hosing not to exceed 6 ft in length. Hang the hosing in a large loop. Do not use rigid piping.



## Drain connection

**F** Connect a 3" (75 mm) flexible hose to the drain outlet of the machine.

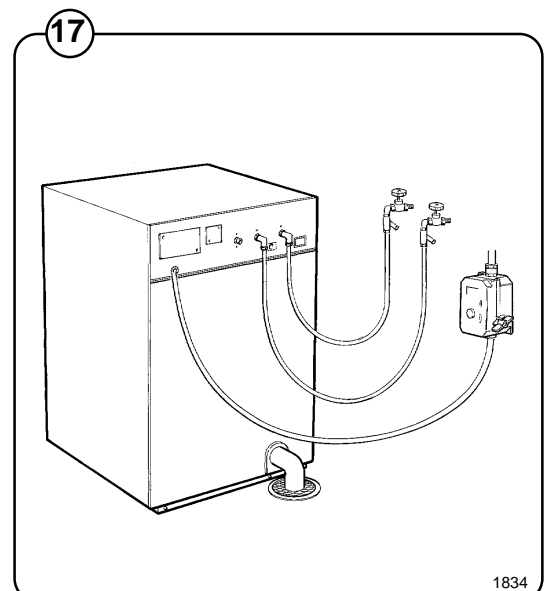
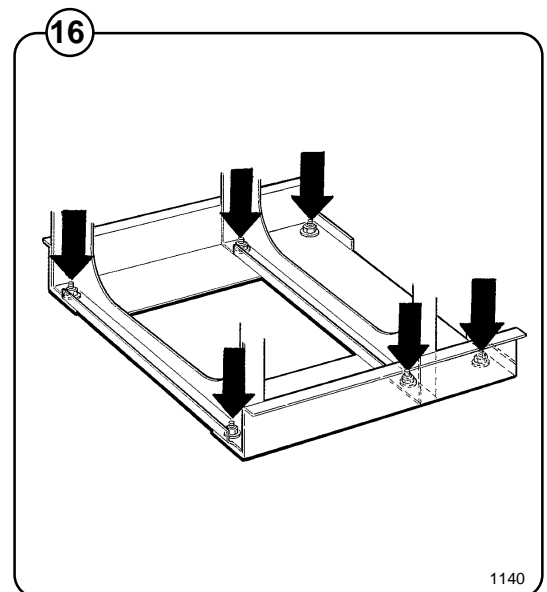
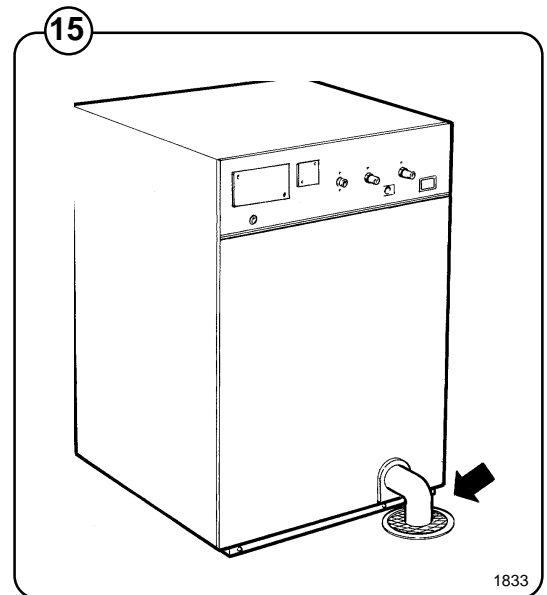
The drain hose must not have sharp bends and must slope from the machine to assure proper drainage. The outlet must open freely to the main drains.

Do not reduce the size of the drain connection from the machine to the waste line.

## Start-up and safety checklist

Before initial start-up of a Wascomat washer-extractor, the following safety checks must be performed:

- F** • Make sure the machine is properly bolted to the floor.
- F** • Make sure that all electrical and plumbing connections have been made in accordance with applicable local codes.
- Use only flexible water fill and drain hoses of the proper length to avoid sags and kinks.
- Make sure the machine is properly grounded electrically.



Before the machine is operated, the door safety interlock must be checked for proper operation as follows:

- F** • When washer loading door is open, the machine must not start. Verify this by attempting to start washer with door open (see section "Procedure").
- F** • When washer is in operation, the loading door is locked and cannot be opened. Verify this by attempting to open the loading door when the machine is operating. If necessary, consult this manual for proper operation of the door lock and door safety interlock or call a qualified serviceman.

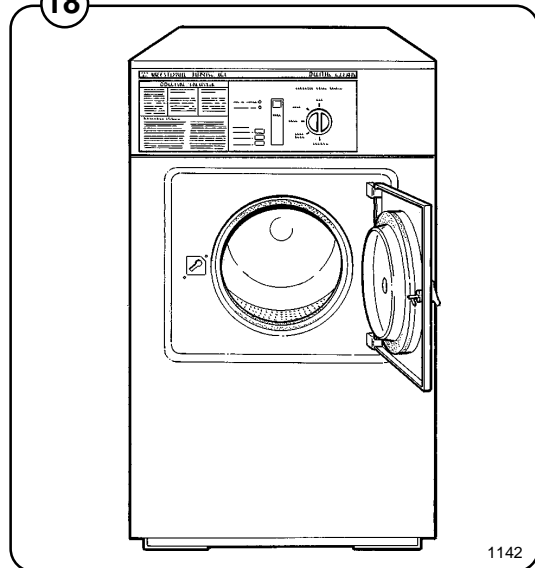
### IMPORTANT:

**Door safety interlock must be checked daily in accordance with above procedure.**

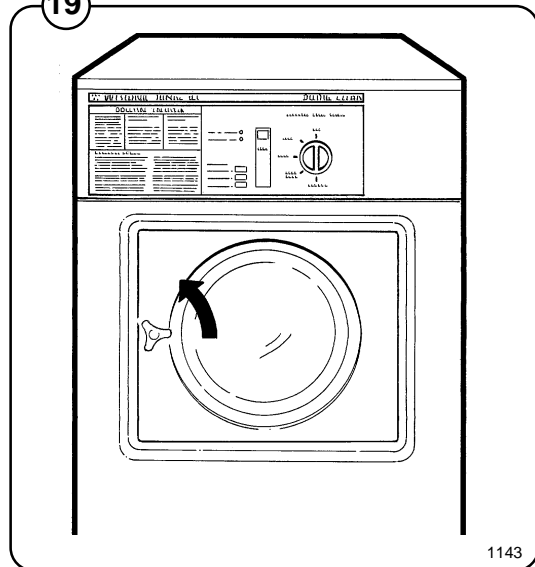
### WARNING:

**Before servicing Wascomat equipment, disconnect electrical power.**

18



19



## Function control check-out list

In the machine cylinder, you will find the warranty registration card, a copy of the warranty policy, the bolt hole template and other pertinent material. The warranty card should be completed and sent to Wascomat. All other items should be placed in a safe place for future reference.

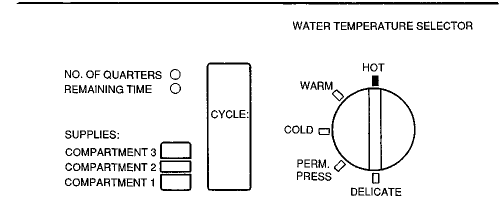
The machine should be cleaned when the installation is completed, and checked out as detailed below without loading the machine with fabrics:

1. Check the incoming power for proper voltage, phase and cycles.
2. Open manual shut-off valves to the machine.
3. Turn on electric power.
4. Check the door safety interlock as detailed on page 10 of this manual.
- F** 5. Select the HOT program and start the machine.
6. Run through a complete cycle, checking for water temperature, drain operation and extract direction.
- F** 7. When the program is in the Soak cycle, hot and cold water should be entering the machine. In the Wash cycle only hot water should enter.
- F** 8. If cold water comes in, the hoses are improperly connected. Reverse hot and cold water hoses.
- F** 9. Machine must spin in a counter-clockwise direction, as seen from the front, during extraction. If it does not, reverse lines L1 and L3.

### NOTE

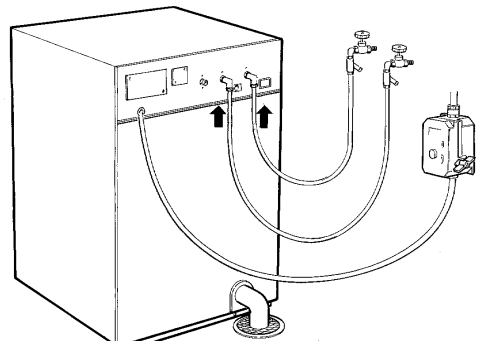
All machines are factory tested prior to shipment. Occasionally, some residual water may be found when the machine is installed.

20



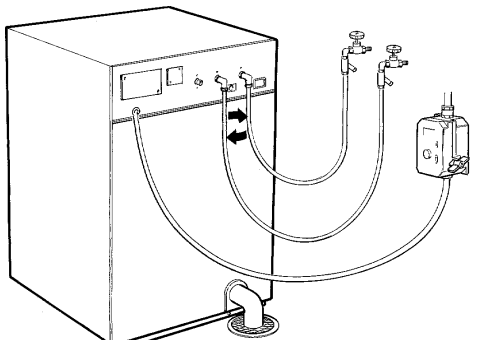
0985

21



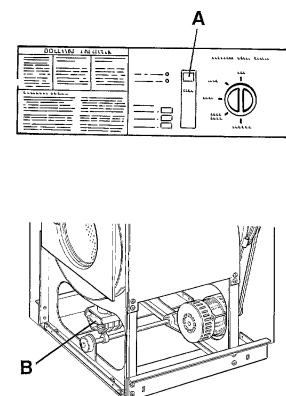
1835

22



1836

23



1188

### Safety rules

- The machine is designed for water washing only.
- Machines must not be used by children.
- All installation operations are to be carried out by qualified personnel. Licensed personnel are necessary for all electric power wiring.
- The interlock of the door must be checked daily for proper operation and must not be bypassed.
- All seepage in the system, due to faulty gaskets etc., must be repaired immediately.
- All service personnel must be fully familiar with the operating manual before attempting any repair or maintenance of the machine.
- The machine must not be sprayed with water, otherwise short circuiting may occur.
- Fabrics softener with volatile or inflammable fluids are not to be used in the machine.

### General

The door and the electronic timer with display and program-selection knob are fitted at the front of the machine.

All control and indicating components, i.e. relays, level control, etc are assembled under the top cover, easily accessible from the top of the machine for simplified servicing.

### Main units

- F** 1 Electronic timer with display and program-selection knob for operating the machine.
- 2 Door - with automatic locking device which remains locked throughout the different wash processes.
- 3 Detergent supply box - three compartments for automatic injection of powdered detergents and fabric softener.
- 4 Inner cylinder - of stainless steel supported at the rear by two ballraces.
- 5 Outer drum - of stainless steel (18/8) securely attached to the frame.
- 6 Wash and extraction motor - for reversing wash action and high speed spin action.
- 7 Hot and cold water valves - program and level controlled solenoid valves for filling with water, and for flushdown of automatic detergent dispenser.
- 8 Drain valve - the timer controlled valve for draining the machine of water.
- 9 Siphon breaker - to prevent water in the machine from re-entering the water supply system.
- 10 Control unit - of plug in type.

## Machine construction

### Outer shell

**F** The outer shell is made of heavy gauge surgical steel and is attached to a heavy duty, rigid head casting (back gable).

The whole assembly is mounted on a heavy gauge fabricated steel base, galvanized for long life and corrosion resistance.

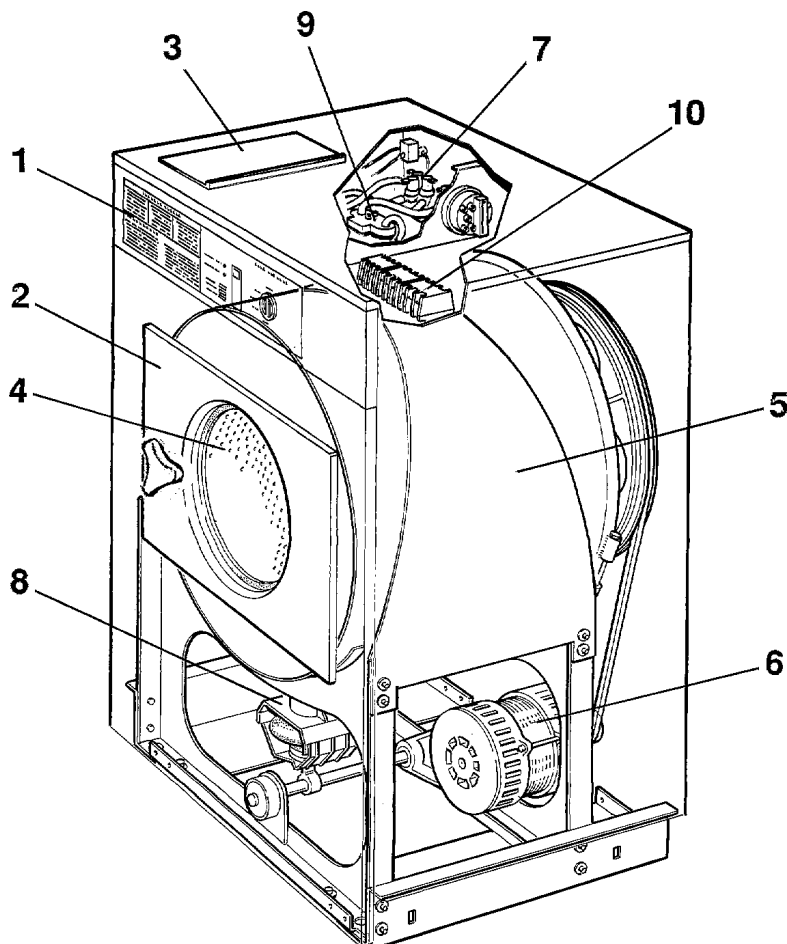
### Inner cylinder

The inner cylinder is made of perforated surgical stainless steel. It is equipped with three lifting ribs and has highly-polished side sheets and back with maximum embossed perforated area to assure high flow of water and supplies through fabrics.

Scientifically correct ratio of cylinder diameter and depth assures maximum washing action.

The shaft is electrically welded to the reinforced back of the cylinder. A specially designed chrome-plated sleeve bushing protects the seals from wear.

24



## Panels

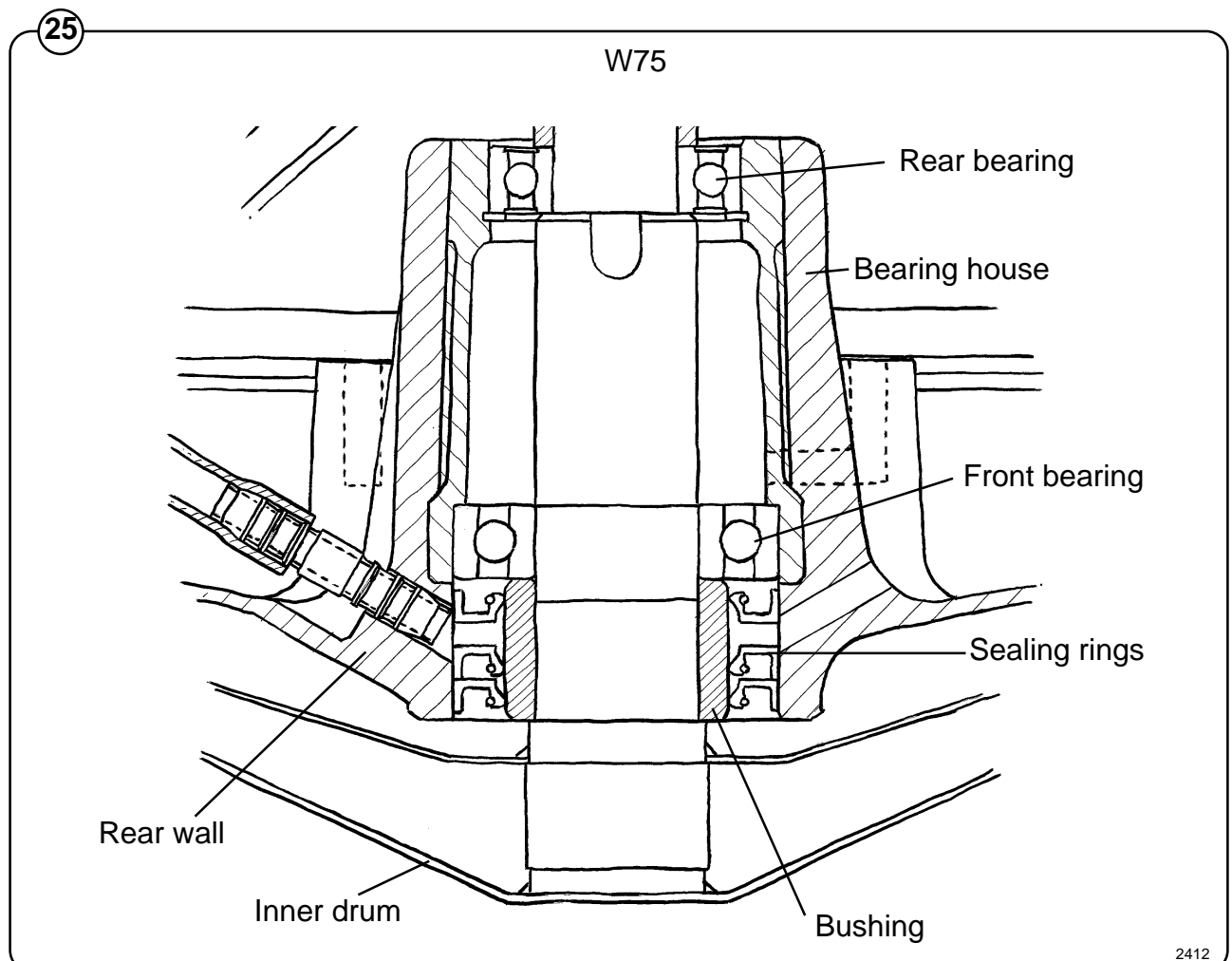
The machines are equipped with a top panel made of stainless steel. The front panel is available in different colors or in stainless steel. The colored panels are made of phosphatized steel plate. For servicing purposes, the panels can easily be removed.

## Back gable and bearing

Fig. 25 The back gable and the bearing trunnion housing are constructed of a webbed heavy casting for extra rigidity. There are three neoprene seals to protect from filtration of water. The sleeve bearings are water protected. An intermediate safety outlet provides an escapement for any possible condensation.

The seals are mounted on a chrome-plated, specially hardened sleeve bushing that is mounted on the drive shaft to prevent wear of the seals and shaft. The main bearing is fitted machine-tight into the bearing trunnion housing. A C-clamp is placed on the shaft to prevent the cylinder from moving in and out.

The extension of the bearing trunnion housing supports the rear bearing holding the shaft. The bearings are permanently lubricated and need no maintenance.



### Door, description

**F** The door consists of: backing board (1), door (2), glass (3) and door gasket (4). The backing board and door are both made of enameled aluminium. The backing board is bolted directly to the outer shell of the washing machine. The door hinges are fastened on the outside of the backing board and the door lock (5) on the inside. The heat-hardened glass is mounted in the door using a special rubber seal which also acts as a gasket between the door and the washing machine's outer shell when the door is closed.

### Door lock, description

**F** The door lock consists of a circuit board (1) with a connector. The following parts are mounted on the board: the lock plate (2) against which the locking bolt turns to lock the door and a micro-switch (3) which closes when the locking bolt has locked the door.

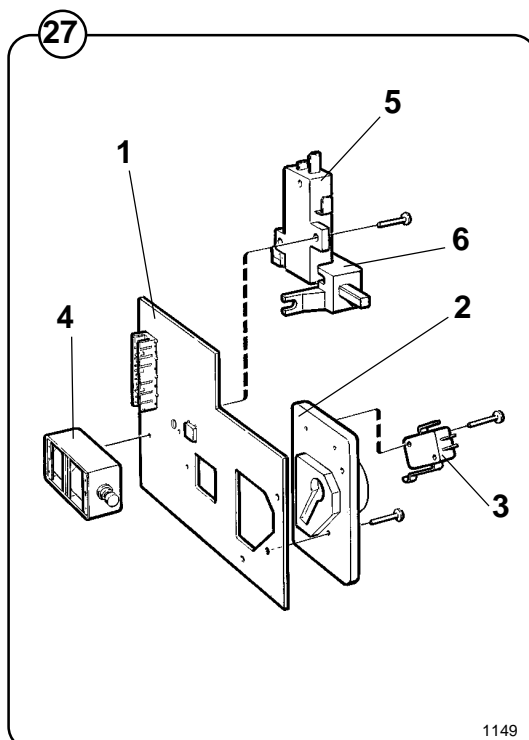
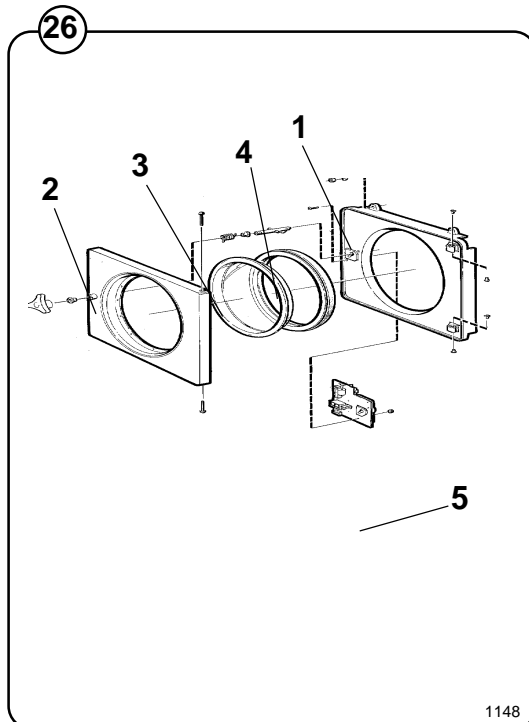
There is also a locking device on the circuit card which acts to lock the locking bolt in place when the machine starts up. The device consists of a double-acting drag magnet (4), a delay unit (5) and the locking device itself (6) which operates sideways in blocking the locking bolt with a stud. The locking device can be affected by both the drag magnet and the delay unit.

The lock operates as follows:

- When the door is shut and the locking bolt moved to the lock position, the micro switch will indicate that the door is closed.
- When the machine is started, the drag magnet actuates the locking device, blocking the door lock. The locking device signals the delay unit, closing a switch in the unit. The washing machine motor will start and water enter the machine only after the delay unit receives the information that the door is locked. The bi-metallic spring in the delay unit is warmed up at the beginning of the program.
- Once the washing machine stops at the end of a cycle, the drag magnet pulls back the locking stud and allows the door to open. The delay unit is spring-mounted in the locking device and is also pulled back by the drag magnet. The drag magnet operates for about two minutes to allow the bi-metallic spring to cool enough not to lock the door again.
- If current should disappear during a cycle, the delay unit will keep the door locked for about two minutes, ensuring that the wash water can drain out (The drain valve opens automatically when current is lost).

### NOTE

**Do not repair a faulty door lock. Always replace the old unit with a new one, to assure proper operation of the door safety interlock.**



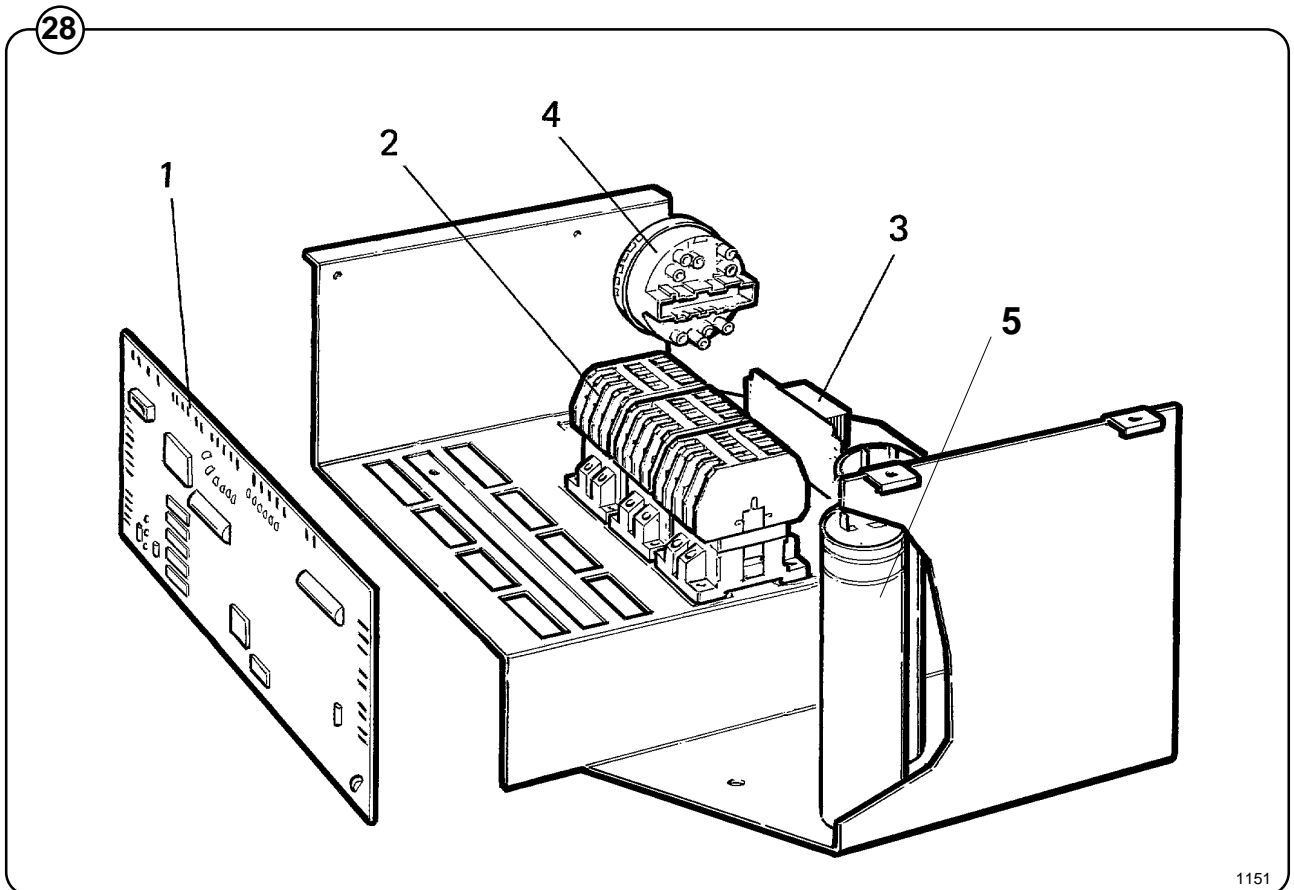
## Control unit

**F** The control panel, mounted at the front, includes all components necessary for operating the machine, such as display window, control lights and a program selection knob.

The printed circuit board (1) with the microprocessor-controlled electronic timer is mounted just behind the control panel.

Relays (2), transformer (supplying the printed circuit board) (3) and level controls (4) are located at the top of the machine, easily accessible for service, as are the motor capacitors (5) on 1-phase models.

Electrical connections to the machine are made by quick-disconnect plugs.



## Relays

**F** The Wascomat HI-TEK models employ three relays. The relays control:

- the reversing wash of the wash motor (1,2)
- the extraction motor (3)

### Construction

**F** The body of the relay holding the stationary contacts is made of current-resistant plastic. A solenoid and a contact bank hold the moving contacts. The contacts are spring-loaded to assure the correct contact pressure.

The relay is constructed for continuous operation, whether mounted horizontally or vertically.

Screw-type terminals provide perfect connections even when one or two wires have different diameters.

### Operation

When the solenoid is energized, the two halves of the magnet core are drawn together, pulling down the moving contacts, thus making or breaking the circuit. When the current cuts out, springs force the contact bank into its original position, thus closing or opening the circuits.

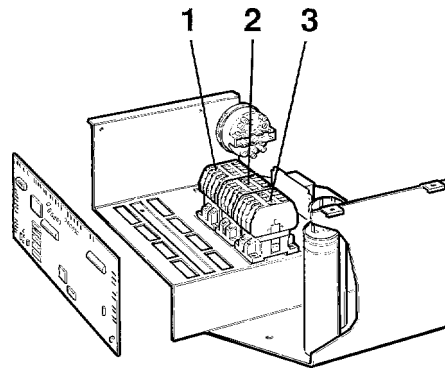
### Trouble shooting

If the relay fails to operate despite power to the coil, turn off the power and check the solenoid by measuring the resistance across the terminals (1).

If the relay hums when power is applied, this indicates either a break in the insulator holding the moving contacts at the axle where it holds the top half of core (3) or a rusty core (4), which can be cleaned.

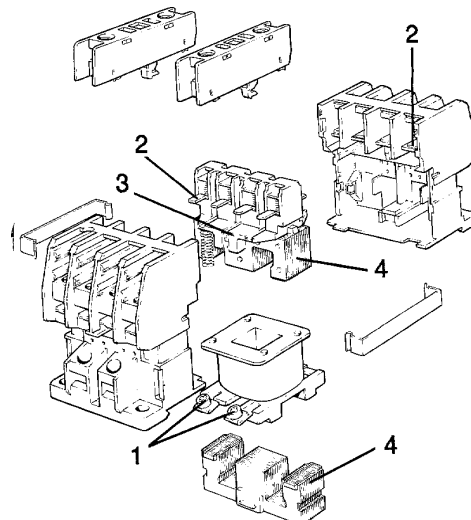
Make sure that the moving contact assembly moves freely. Always replace burnt or pitted contacts (2) ... do not reuse contacts.

29



1152

30



0301

## Drive motor

### Description in general

- F** The motor is mounted on an axle with rubber dampeners.
- F** The V-belt is tightened by turning the motor on the axle and locking it in place using the tightener on the rear side of the motor. The motor and tightener unit have vibration and noise dampening rubber suspensions.

### Construction in general

The motor consists of stator, rotor and end-shields with ball-bearings. The stator and the rotor consists of plates, insulated from each other and welded together. The stator is provided with slots in which the 2-pole and 18-pole windings are wound. The windings are impregnated with a temperature-resistant sound-insulating resin varnish according to class B. The end-shields are die-cast. The ball bearings are permanently lubricated.

### Construction of single-phase motor

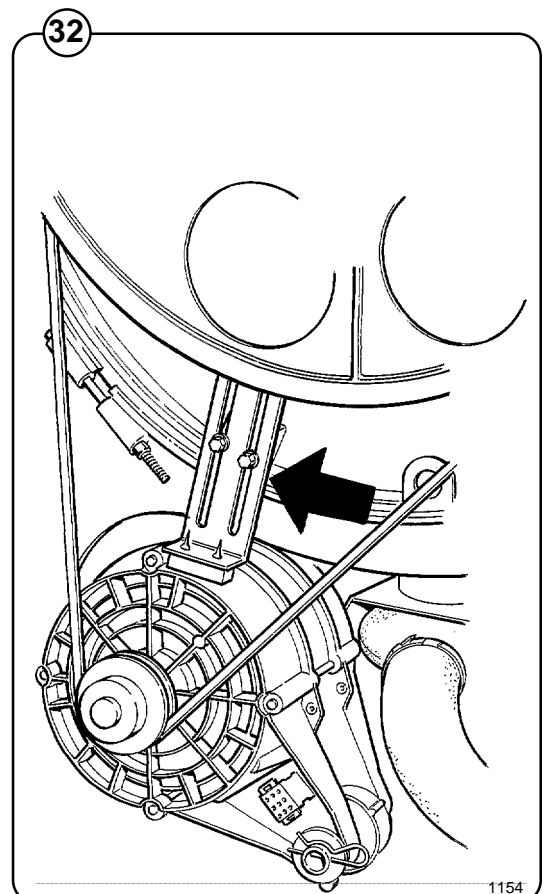
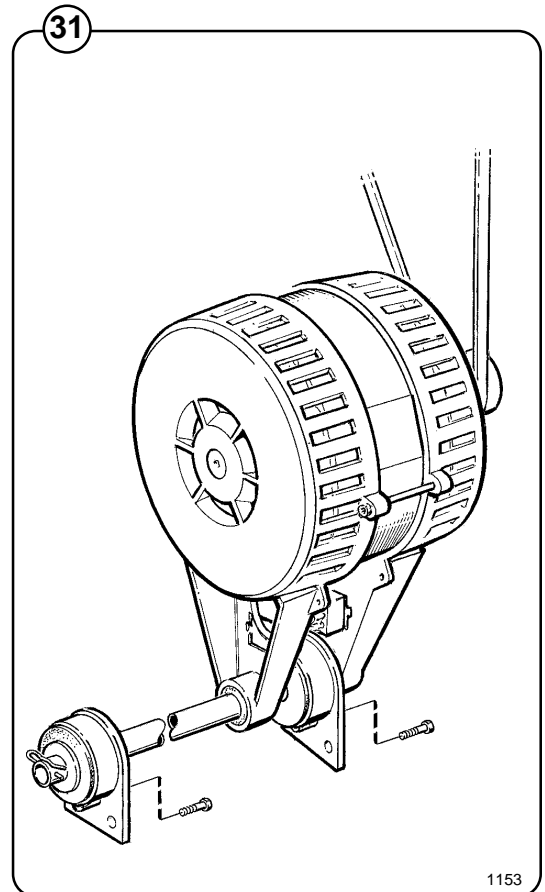
Single-phase motors have an 18-pole winding (wash-speed) the same as three-phase motors, using a continous connected capacitor, while the 2-pole winding (extract-speed) is a specially designed winding with both continous connected capacitor and starting capacitor.

### Function of 3-phase motor

When the stator winding is charged, a magnetic field will occur, which in turn will rotate the rotor at a fixed RPM depending upon the number of poles in the winding. The 18-pole winding gives the wash speed and the 2-pole winding the extract-speed. When operating with load, the speed deviates slightly from the synchronous (no-load) speed. This difference is called the slip and is usually expressed as a percentage of the synchronous speed. The motors will work satisfactorily at nominal voltage +10%-15%.

### Function of single-phase motor

When the stator winding is charged without a capacitor, two counteracting magnetic fields are created. When a capacitor is connected, it will displace one of the two magnetic fields adding it to the other, creating a torque turning the rotor in a specific direction. The RPM is the same as for the 3-phase motor.

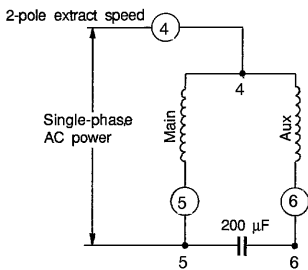


Principal wiring and points of measuring on single-phase motors.

- The numbers at the connection points refer to the terminal numbers at the motor connector plug.
- The numbers in circles indicate points of ampere measurements.

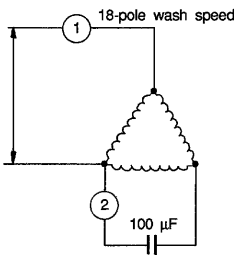
33

W75 120 V 60 Hz single-phase



EXTRACT WINDINGS

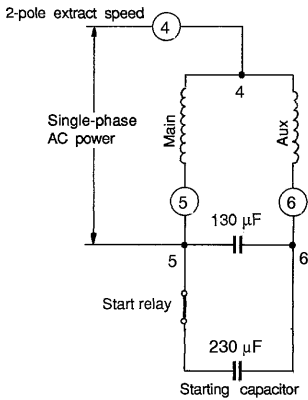
Measuring point	at full speed
④	10 A
⑤	7 A
⑥	14 A



WASH WINDINGS

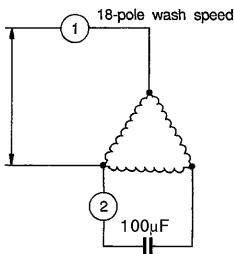
Measuring point	unloaded
①	4 A
②	4.9 A

W105 120 V 60 Hz single-phase



EXTRACT WINDINGS

Measuring point	at full speed
④	5.5 A
⑤	2.0 A
⑥	6.5 A

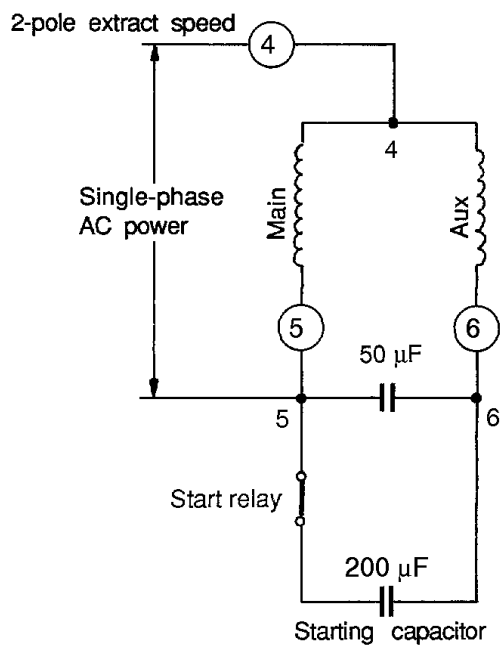


WASH WINDINGS

Measuring point	unloaded
①	3.5 A
②	5.0 A

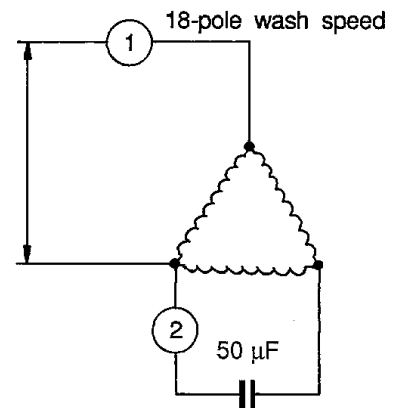
34

W125 208-240 V 60 Hz single-phase



EXTRACT WINDINGS

Measuring point	att full speed	
	208 V	240 V
④	3 A	4 A
⑤	3 A	6 A
⑥	6 A	7 A

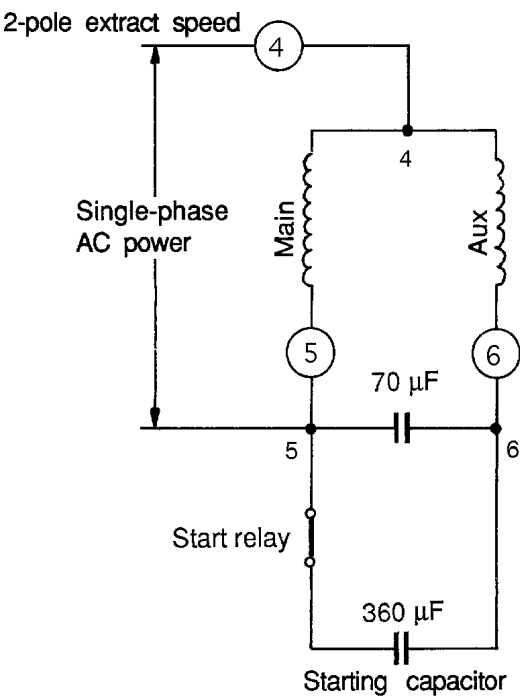


WASH WINDINGS

Measuring point	unloaded	
	208 V	240 V
①	2.9 A	3.9 A
②	4.6 A	4.8 A

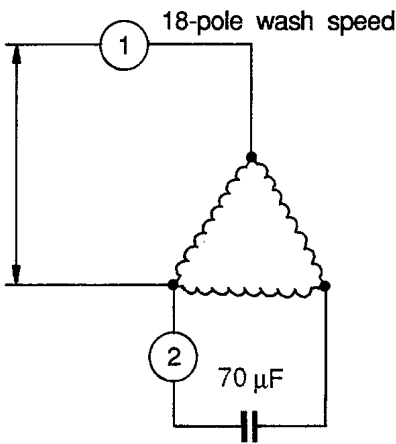
35

W185 208-240 V 60 Hz single-phase



EXTRACT WINDINGS

Measuring point	att full speed	
	208 V	240 V
①	5 A	8 A
②	5 A	12 A
③	7 A	9 A



WASH WINDINGS

Measuring point	unloaded	
	208 V	240 V
①	3,3 A	4,2 A
②	6,8 A	7,2 A

## Motor connections

- F** 1, 2 and 3: wash speed (18-pole winding).  
 4, 5 and 6: extract speed (2-pole winding)  
 7 and 9: motor overload protector.

## Motor overload protector

The motor is equipped with two self-resetting, thermal overload protectors, situated one in the each winding of the stator. The protectors are connected in series and will trip at a temperature of 120°C (248°F) (3-phase) or 130°C (266°F) (single phase). In the event the protectors fail but the motor remains otherwise undamaged, an overload protector may be mounted in the control unit of the machine. Before making such installation check to ascertain that the windings are not damaged. A burned out motor can be re-wound.

### NOTE

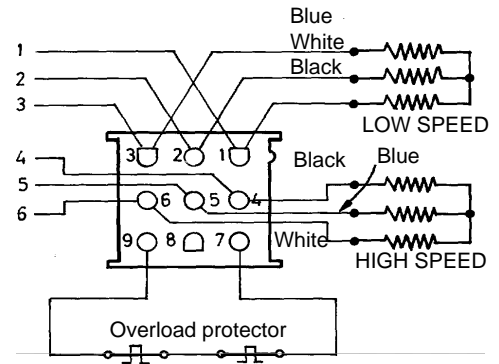
**Before connecting a separate overload protector consult the local code.**

Single-phase W125 and W185 machines are also equipped with a manually set overload protector mounted on the extract relay in the control unit. This overload protector protects the motor during the start-up of the extraction.

## Removing the motor

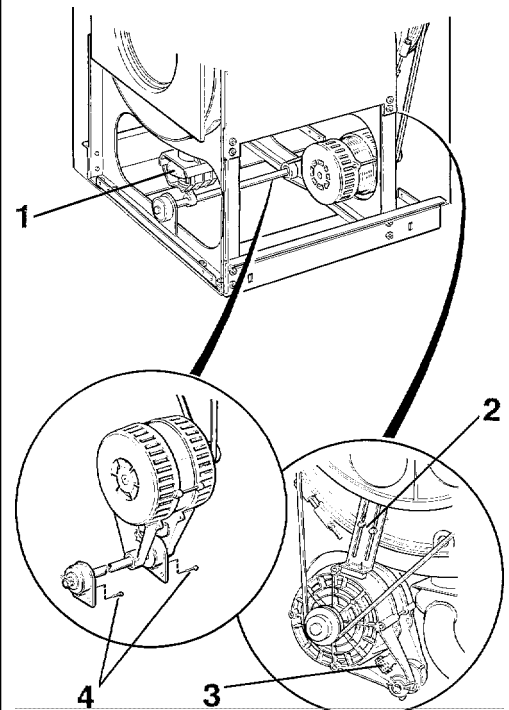
- F**
- Remove the drain valve (1) from the axle by pulling it straight up.
  - Remove the tightening unit (2) on the rear of the motor.
  - Disconnect the connector (3) placed diagonally under the rear edge of the motor.
  - Remove the two screws (4). Pull the axle forward slightly until the guide pins pull out of the axle brackets. Remove the motor unit.

34



0304

35



1157

## Water level controls

**F** One pressure switch is used to control the correct water levels during various cycles of the washing program.

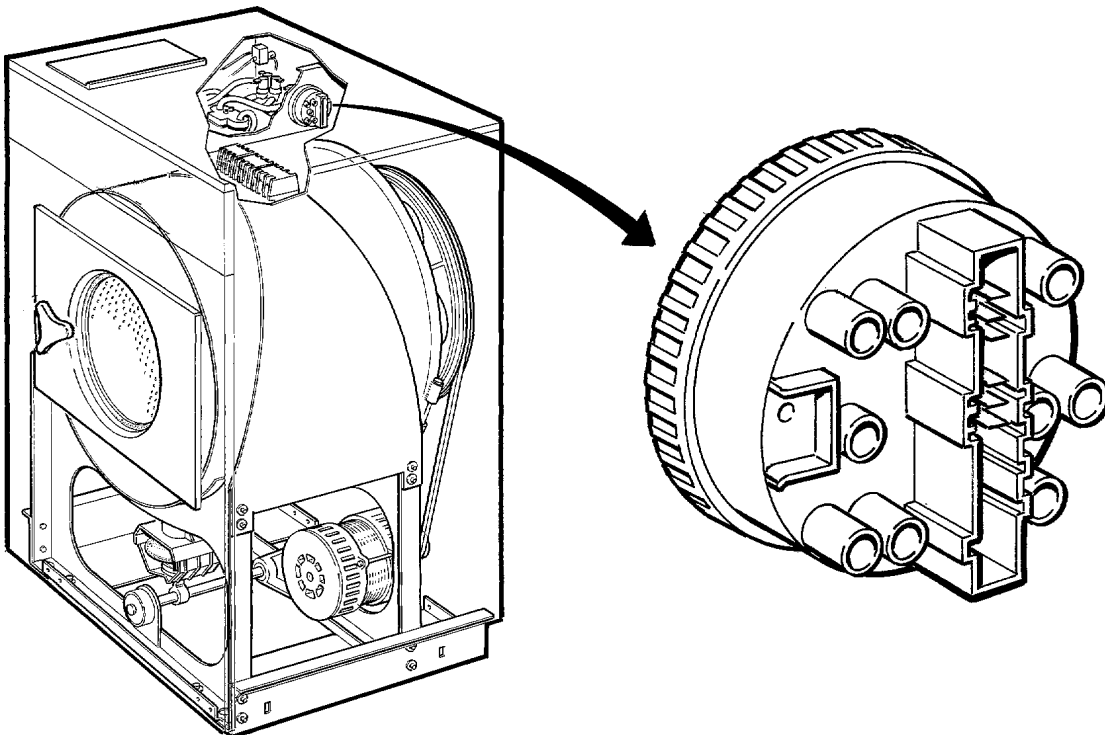
### Adjustment

All pressure switches are factory-calibrated to meet specific requirements. The trip level for any one pressure switch can be changed only within narrow limits because each trip range requires a different set of springs.

### Water level

As a guide for checking the level control for proper functioning, the normal level should be at the bottom of the door glass.

36



## Inlet valves

### Construction

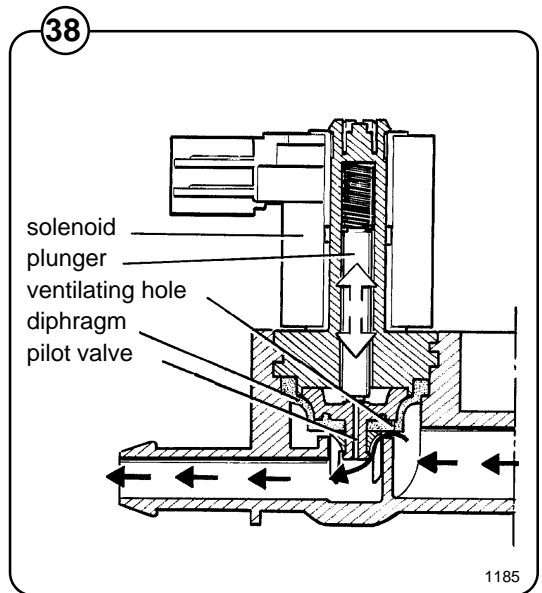
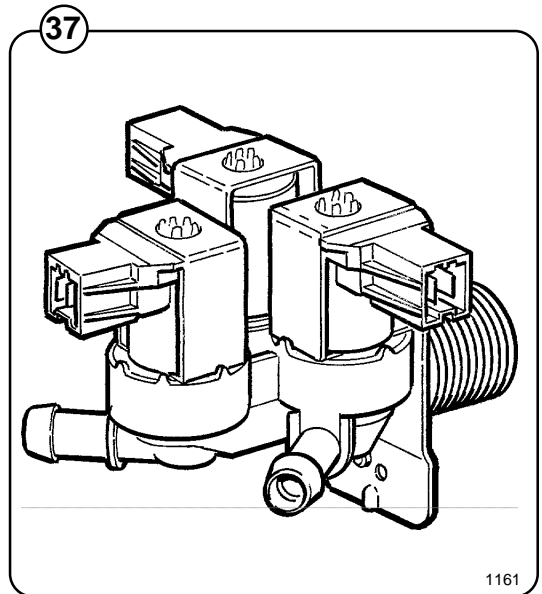
**F** The valve has a single-inlet with either one, two or three outlets, each with its own solenoid coil. The body is made of heat-resistant polyamid plastic and the solenoids encased in water-tight plastic.

A filter screen on the inlet side prevents dirt from entering the valve. Flow restrictors can be placed at either the inlet or any of the outlets.

### Operation

**F** When the solenoid is energized, the spring-loaded plunger is drawn up and the pilot valve in the center of the diaphragm open. Because of the difference in diameter between the pilot valve opening and the ventilating hole in the diaphragm, the pressure above the diaphragm drops to a point where the admission pressure below the diaphragm can lift the diaphragm, thus opening the valve.

When the current to the solenoid is cut off, the plunger spring will press the plunger against the pilot opening of the diaphragm. The pressure above the diaphragm then rises to correspond to the water inlet pressure and the pressure of the spring will close the valve.



### Repair instructions

Limescale can block the hole in the valve diaphragm and interfere with the function of the valve.

**F** It is therefore advisable to dismantle and clean the valve at certain regular intervals. The frequency depends on operating conditions and the level of contamination in the water.

#### If the valve does not open

- Check that power is supplied to the coil.
- Check the coil with an instrument to determine whether there is a break or a short circuit.
- Dismantle the valve (see below) and check the openings in the valve diaphragm.
- Check the inlet strainer and clean as required.
- Undo the coil and clean the surfaces of the magnetic core.

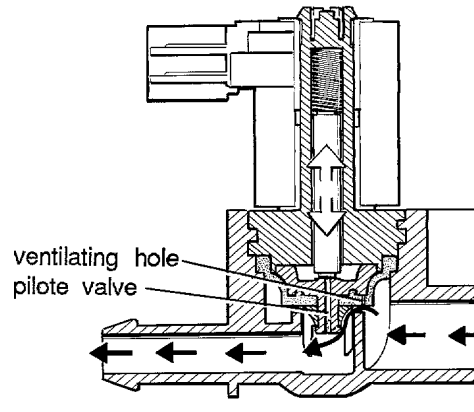
#### If the valve does not close

- Check that the coil is not live. The valve is normally closed when the magnet is not energised.
- Check the return spring
- Check the diaphragm (pilot pressure opening).

#### Dismantling the valve

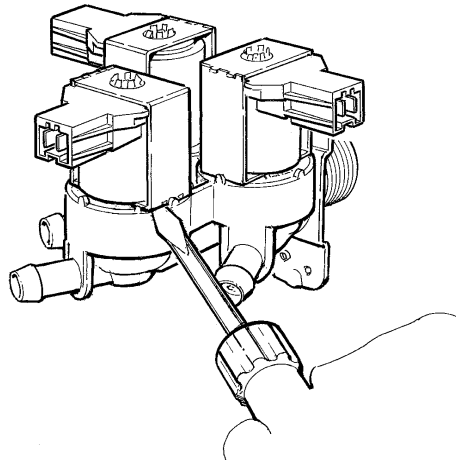
- F**
- Pull the coil straight upwards. Use a screwdriver if necessary to carefully undo the coil.
- F**
- Use the tool supplied (attached to one of the hoses when the machine is delivered) to open the valve housing. Slide the tool over the protruding plastic sleeve to that the pegs on the tool engage the corresponding sockets in the valve housing.
  - Use a spanner or a pair of pliers and unscrew the upper part of the valve housing.

39



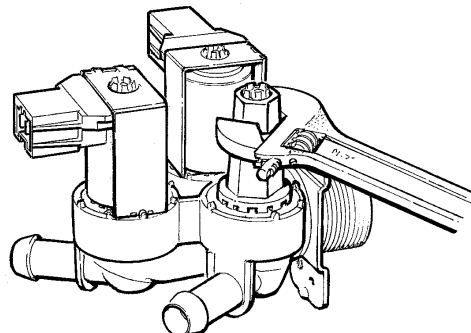
1186

40



1187

41



1181

## Inlet valve for W185

**F** The water inlets have brass bodies with larger cross section of the outlet in order to achieve a shorter filling time for the machine.

### Construction

The valve housing is made of pressed brass. The spring-loaded plunger is made of stainless steel and located at its lower end is a rubber gasket for the pilot valve.

### Operation

The valve is automatically operated by means of a rubber diaphragm and a pilot valve in exactly the same way as the supply injector valve.

**NOTE: To strip, clean, re-assemble and troubleshoot the inlet valve, follow the instructions outlined for the supply injector valve.**

### Clean out

At water temperatures of more than 60°C/140°F, the lime deposits are heavily increased. This can cause function problems due to blocking up the equalizing orifice of the valve.

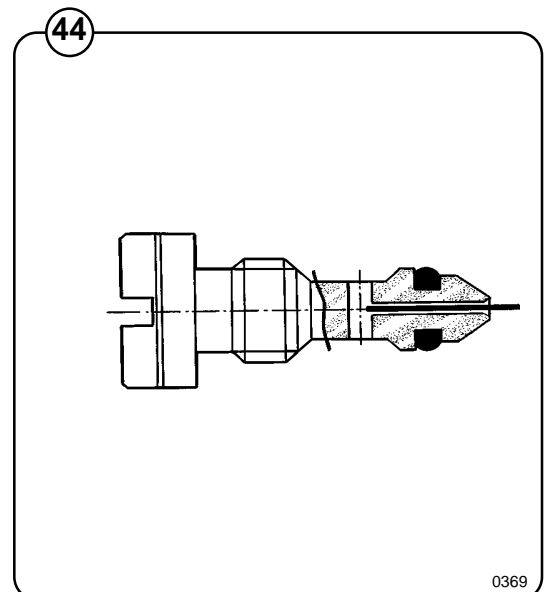
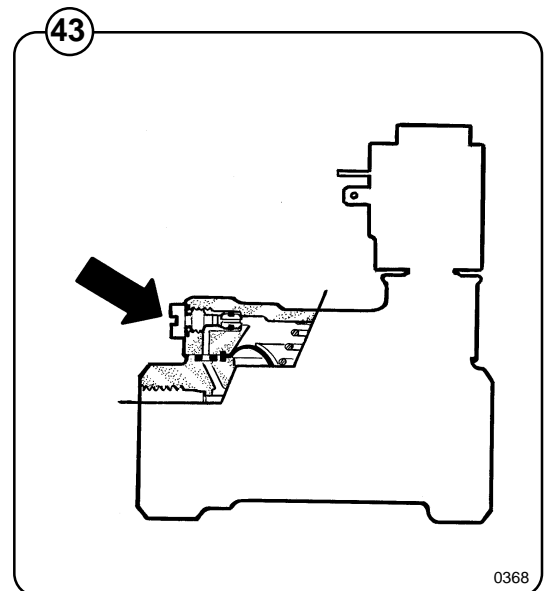
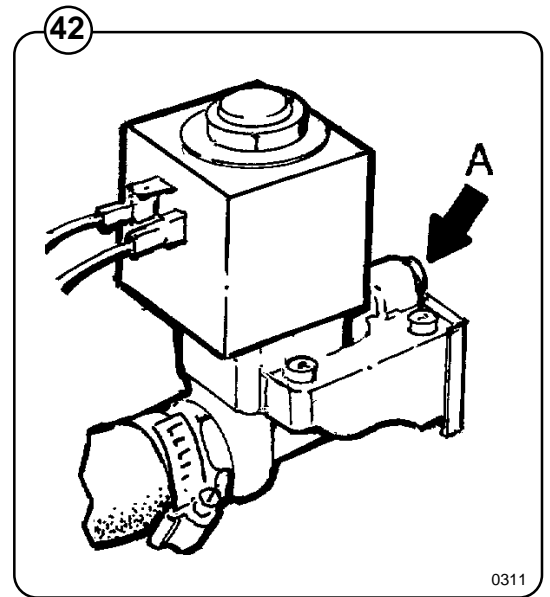
**F** The fault can be eliminated by cleaning the equalizing orifice (marked A).

**F** If there are much deposits the orifice can be changed from 0.5 mm to 0.8 mm. The screwhead of the orifice is marked with 1 ring for the size of 0.5 mm and 2 rings for the size of 0.8 mm.

Clean the orifice as follows:

1. Shut off the main supply.
2. Unscrew the orifice.

- F**
3. Clean the hole in the orifice carefully with a pin or similar not thicker than 0.5 resp. 0.8 mm.
  4. Mount the orifice, be careful with sealing and tighten.
  5. Open the main supply.



## Soap supply box

**F** The three-compartment soap supply box is located at the top of the machine. Viewed from the front, the compartments marked with figures 1, 2 and 3 are used as follows:

### Compartment 1

This compartment is used for adding detergent to the wash at the start of the Soak cycle.

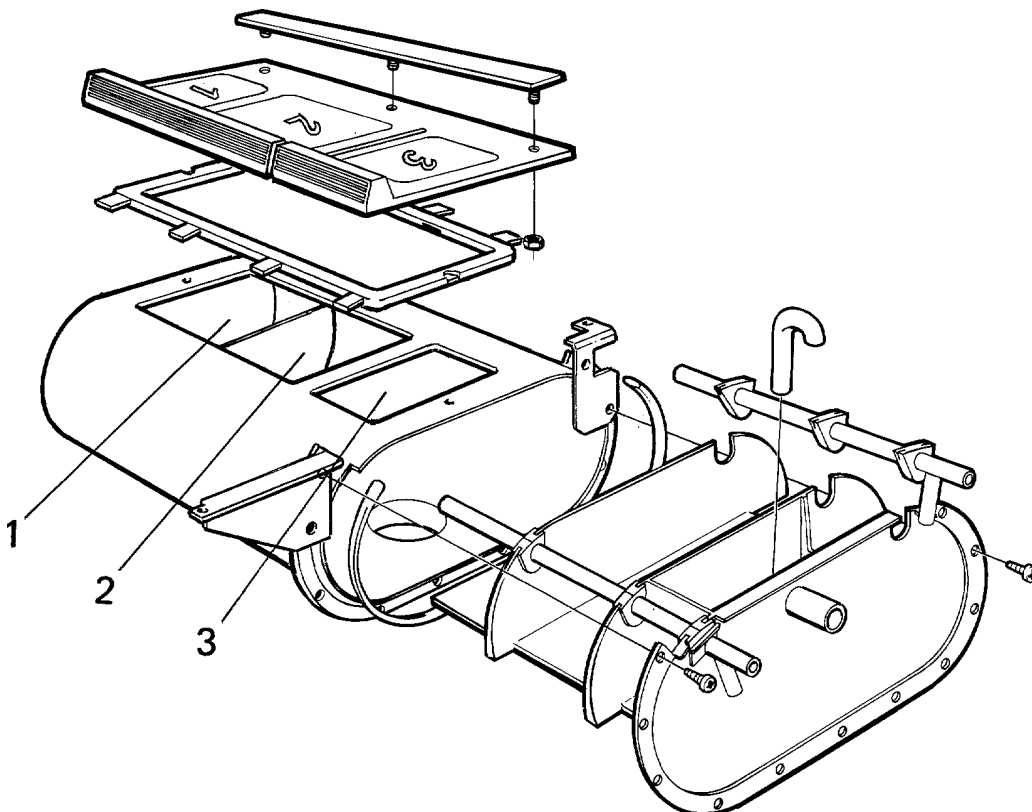
### Compartment 2

This compartment is used for adding supplies to the wash at the beginning of the Wash cycle.

### Compartment 3

The small compartment is used for adding fabric softener, which is flushed down by a siphon action at the start of the third rinse.

45



## Drain valve

### Description

**F** The drain valve is steered using the pressure in the cold water intake. A hose (1) is connected between the cold water intake and a solenoid valve (2). When the solenoid valve is activated, it opens and allows water to flow into the feeder hose (3). The water presses up a piston (4), which uses the pressure lid (5) to close the drain valve rubber membrane. When the solenoid valve cuts out, the water pressure and the springs (7) on the lid push the piston back, allowing the water to pass the solenoid valve and drain out via the return hose (8).

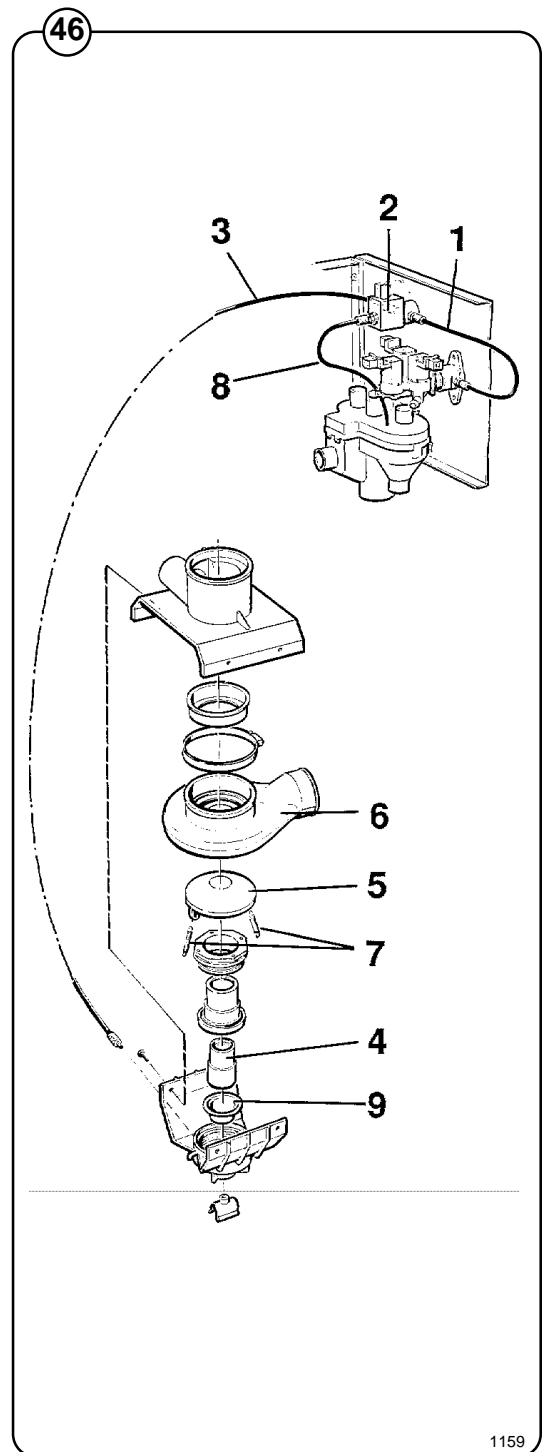
### Trouble shooting

If the drain valve doesn't close:

- Check that the solenoid valve (2) receives electricity. The drain operation can be checked using the washing machine's built-in service program (see section titled "Service Program").
- Check that the solenoid valve and the hoses are clear by:
  - removing the drain hose (3).
  - activate the machine's service program (see section titled "Service Program") and change the program to allow direct control over the drain valve.
  - check that water exits the hose when the valve is activated.
- Check that the diaphragm (9) is undamaged.

If the drain valve doesn't open:

- Check that the return hose (8) is open.
- Check that the piston (4) doesn't seize.



## Procedure

### Preparations

Sort the laundry according to the categories listed on the control panel. Check washing instructions on garment tags.

Empty pockets and close zippers.

Open door, put laundry in the machine and close door.

### Washing

**F** Turn control knob to desired wash program.

**F** Indicator panel now shows which operations are included in the program.

**F** Three lights indicate where the detergent and fabric softener should be added.

- F** • pre-wash detergent in compartment 1
- F** • regular detergent in compartment 2
- F** • fabric softener in compartment 3

Follow dosage instructions on detergent package.

Liquid detergent can only be added at the beginning of the specific cycle.

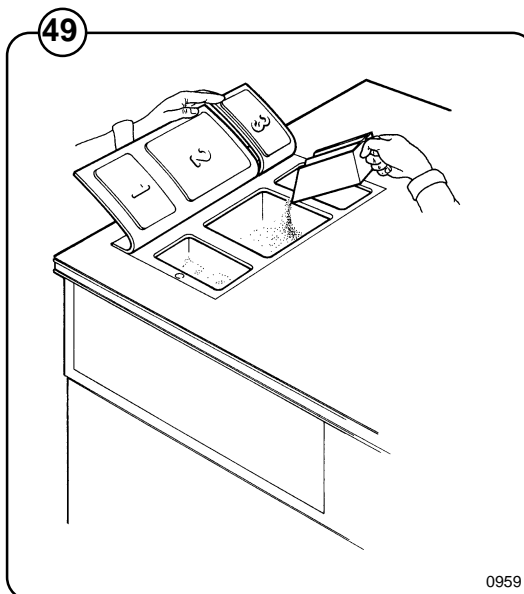
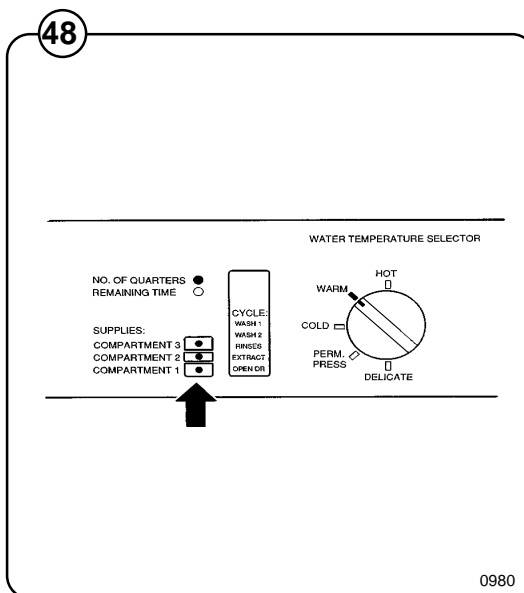
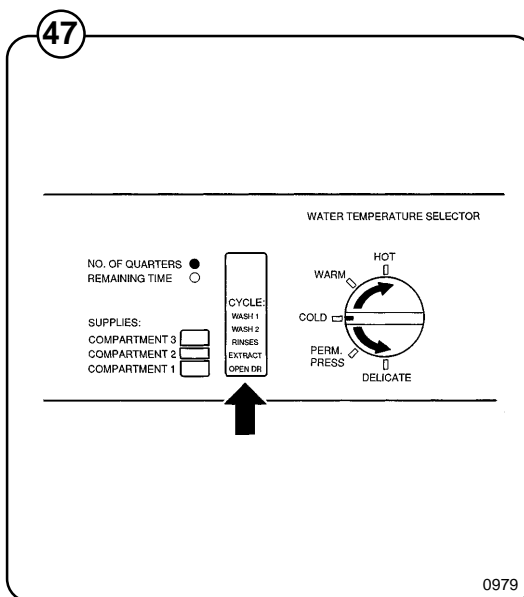
*Starting coin-operated machine:*

The digital display shows how many coins or tokens should be used. When the right amount has been added the machine starts automatically.

*Starting non-coin-operated machine:*

Press **START**.

When the machine has started the display will show the time remaining in the cycle.



## Changing Programs

**F** Within 10 sec of starting the machine a new cycle can be selected by turning the control knob to the desired program. The machine will start over with the new program. It will not drain any water from the drum.

## Finishing

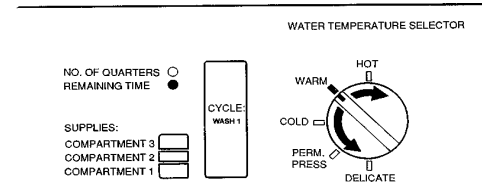
**F** When " **OPEN DR**" is displayed on the control panel the door can be opened.

When necessary, clean the door gasket and detergent compartments. Wipe off the machine with a damp cloth.

Leave the door open when the machine is not in use.

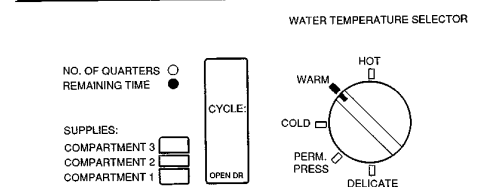
Leave the machine in the condition you would expect to find it in.

50



0981

51



0982

## Programming

When programming the machine, the program selector is used in conjunction with a special function selector switch not available to the general user.

**F** The function selector switch is situated behind the coin box.

The following values can be programmed:

- number of coins or tokens per wash cycle
- price reduction for a given time (%)
- program group selection

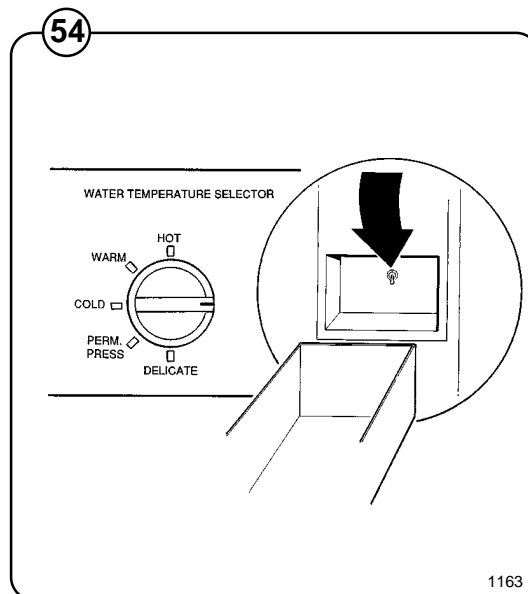
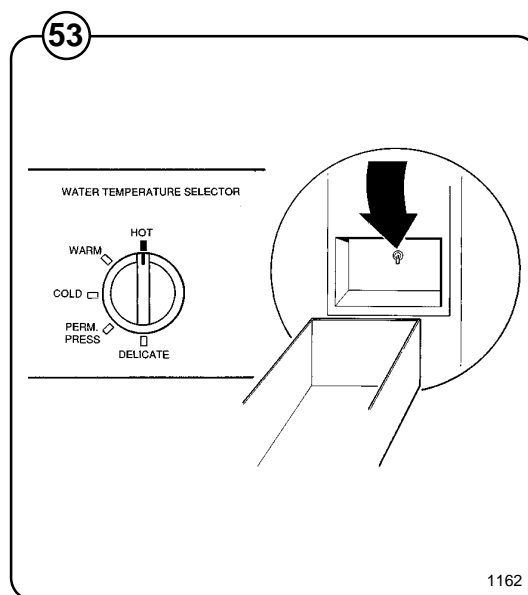
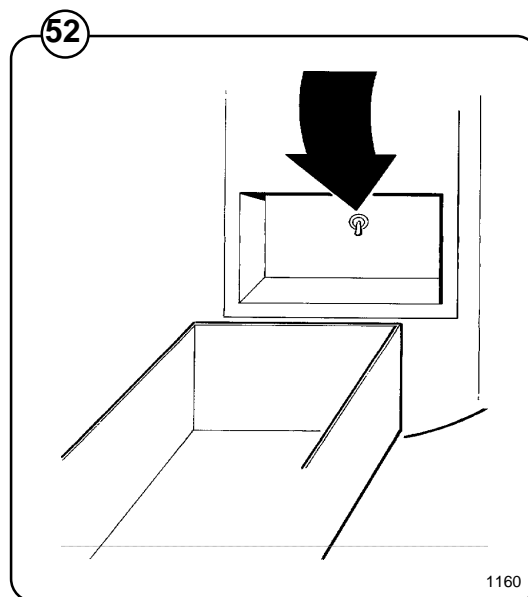
The function selector can also be used to read the built in coin counter and to check the different operations of the machine. (See section Service Programs)

### Number of coins or tokens per wash

The number of coins or tokens per wash can be set to a value from 01 to 99. The machine can only be programmed for one type of coin and one price, for all 5 wash programs.

- F**
- Turn the program selector to **HOT**.
  - Depress the function selector switch. The current value set is shown on the display.
  - If the function selector is held down, the value counts up. If a lower amount is desired, the value must first be counted up to 99 and then from 00 up to the correct value.

- F**
- When programming is complete, turn the program selector as in the figure and release the function selector.



## Price reduction

It is possible to program a percentage reduction of the price.

An example:

- The normal price for one wash program is four coins.
- If you wish to make a price reduction to three coins, program the percentage 25 (1/4 reduction of the normal price).

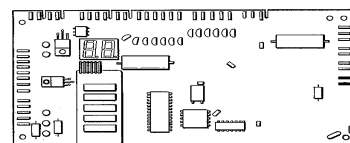
**F** The price reduction is activated when a voltage signal from e.g. a timer, is connected to the contacts as shown in the figure.

- F**
- Turn the program selector to **WARM**.
  - Depress the function selector switch. The set value is shown on the display.
  - By holding down the function selector switch the percentage is increased. If a lower figure is desired, the value must first be counted up to 99 and then from 00 to the correct value.

**F**

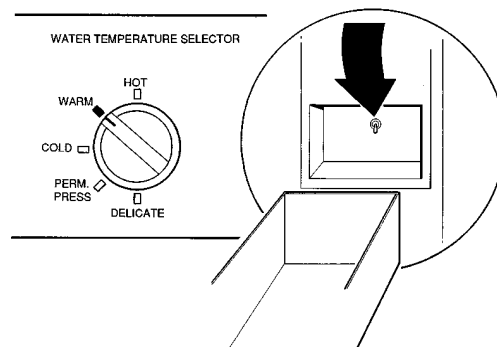
- When programming is complete, turn the program selector as in the figure and release the function selector.

55



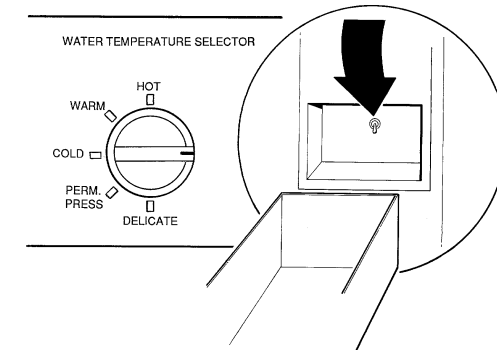
1164

56



1165

57



1163

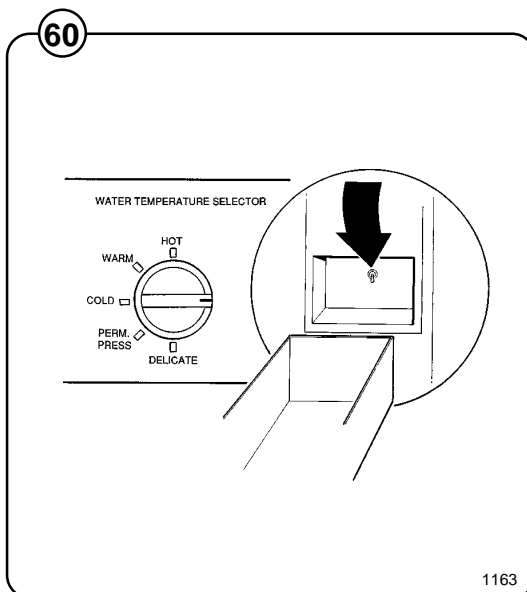
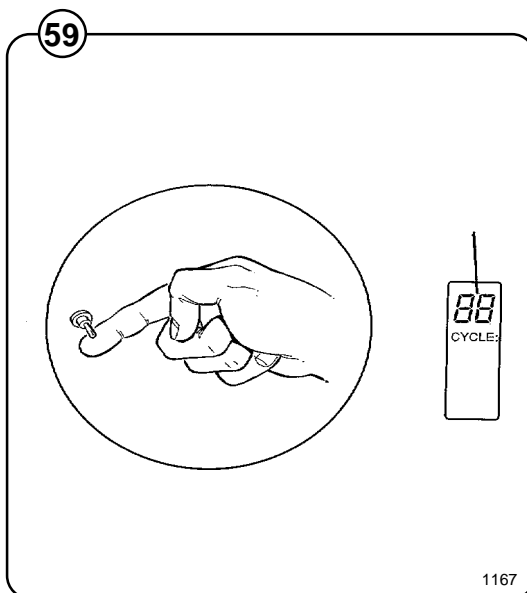
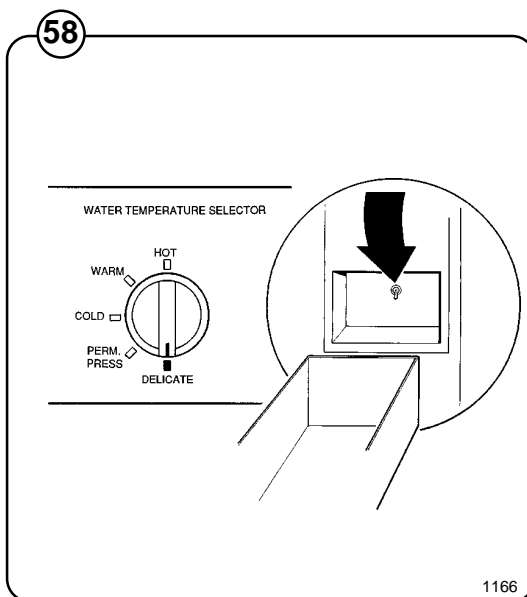
## Program Group Selection

The electronic memory includes 20 programs divided into 4 groups of 5 programs.

- Group 1 includes the 5 standard programs HOT, WARM, COLD, PERMANENT PRESS and DELICATE, all including a pre-wash and 3 rinses.
- Group 2 includes the standard programs but without a pre-wash.
- Group 3 includes the standard programs but without a pre-wash and with only two rinses.
- Group 4 includes the standard programs but without a pre-wash and with only one rinse.

The programs are specified in the section on "Wash Programs" in the handbook.

- F**
- Turn the program selector to **DELICATE**.
  - Depress the function selector switch. Now the display shows SG (Select Group). When you release the function selector the set value is shown on the display.
- F**
- You can change the program group by repeatedly depressing the function selector switch until the right group number appears on the display.
- F**
- When programming is complete, turn the program selector as in the figure and release the function selector.



## Reading the Coin Counter

The machine has a built-in four-digit coin counter mechanism which counts one step with each coin. The counter cannot be reset.

To read the counter follow these steps:

**Fig. 61** • Turn the program selector to **PERM PRESS**. Depress the function selector switch.

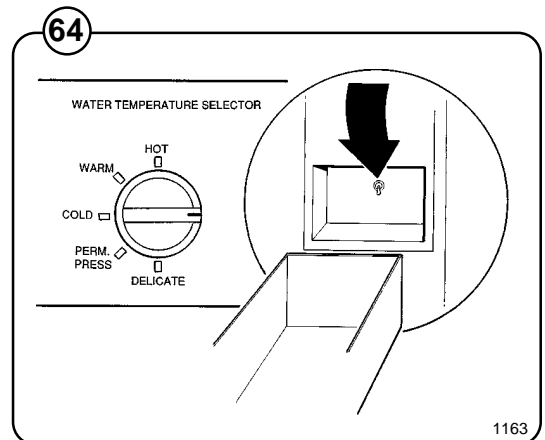
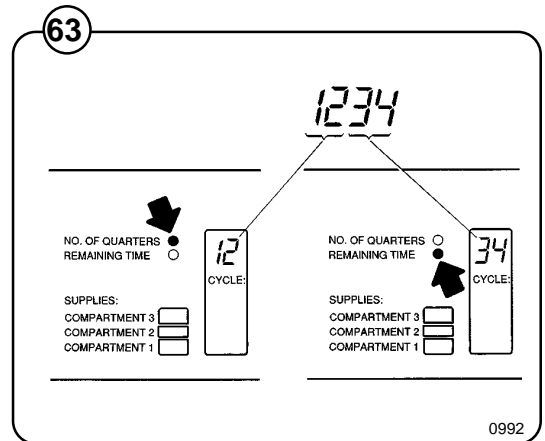
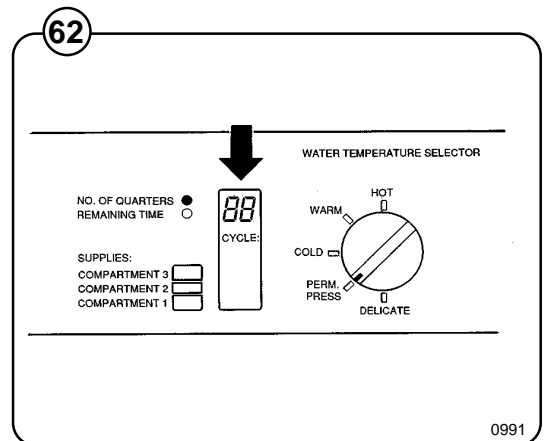
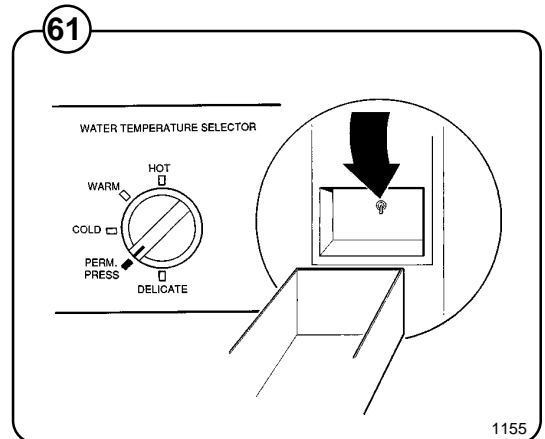
**Fig. 62** • The **No of Quarters** light is turned on and the first two digits of the correct number are displayed. Depress the function selector switch again. Now the **Remaining Time** light turns on and the two last digits of the correct count are displayed.

• Continuing to press the function selector switches the display back and forth between these two values.

• An example:

**Fig. 63** If the counter reads 1234 the digits 12 will be displayed when **No of Quarters** is lit and 34 will be displayed when **Remaining Time** is lit.

**Fig. 64** • When programming is complete, turn the program selector as in the figure and release the function selector.



## Service Programs

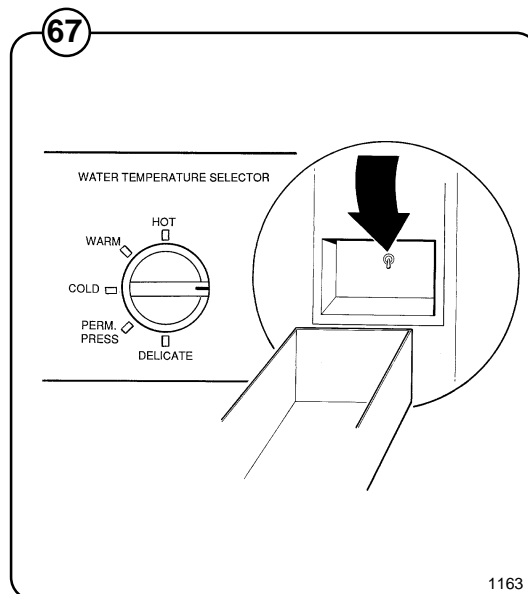
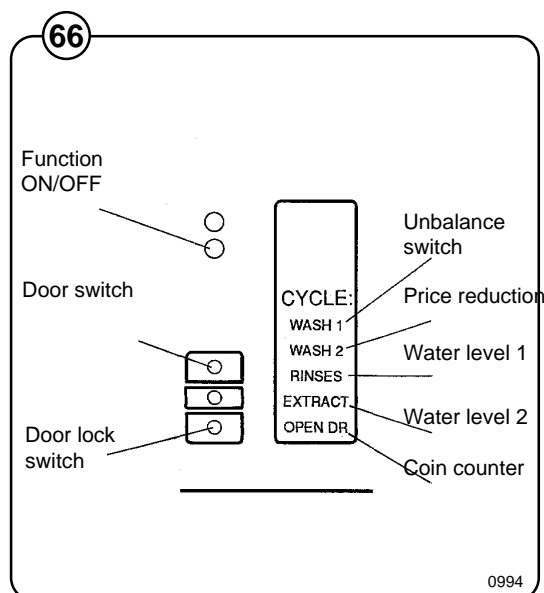
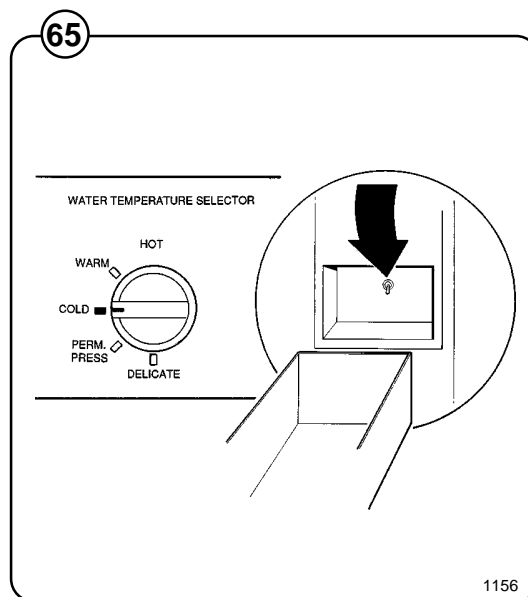
It is possible to manually test many of the functions of the washing machine using the function selector switch. One can also check switches and level sensors by reading the indicator lights on the control panel.

### Checking Switches and Level Sensors

**Fig. 65** Turn the program selector to **COLD**. Depress the function selector switch and the display will show "SE" for "Service Program". Now you can check different switches and level sensors by reading the indicator lights on the panel according to the table below.

Indicator on panel	Function
Wash 1	Unbalance switch
Wash 2	Price reduction
Rinses	Water Level 1
Extract	Water Level 2
Door Open	Coin Counter
Compartment 3	Door switch
Compartment 1	Door lock switch
Remaining Time	Function On/Off

**Fig. 67** When the check has been completed turn the temperature selector as in the figure and release the function selector switch. The machine will return to normal operation.



## Function check

**Fig. 68** Turn the program selector to **COLD**. Press the function selector switch and the display will show "SE" for "Service Program".

- 1 Turn the program selector to one of the settings **HOT, WARM, COLD** or **PERM PRESS** depending on which group of functions (see table below) you wish to check.
- 2 Select the right function within the group by depressing the function selector and holding it for more than 1.5 seconds. The figure in the display will now count up. Release the button when the correct number within the chosen group (see table below) is displayed.

By repeatedly pressing the function selection switch (less than 1.5 seconds) the given function can be turned on and off. The "**Remaining time**" light indicates whether the function is on (light on) or off (light off).

**Fig. 69**

When the check has been completed, turn the program selector as in the figure and release the function selector switch. The machine will now return to normal washing.

**Fig. 70**

Table: Functions to be selected

### Group 1 (HOT)

- 1 Cold water
- 2 Warm water

### Group 2 (WARM)

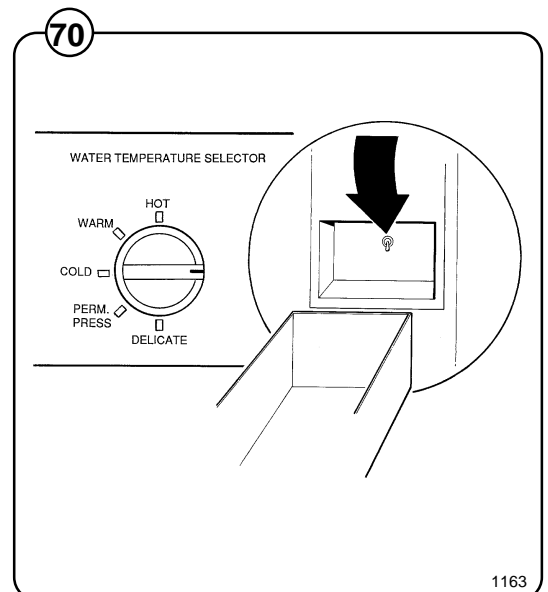
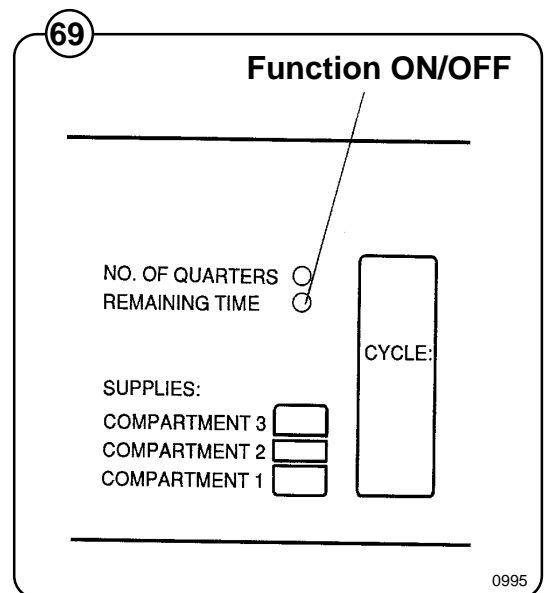
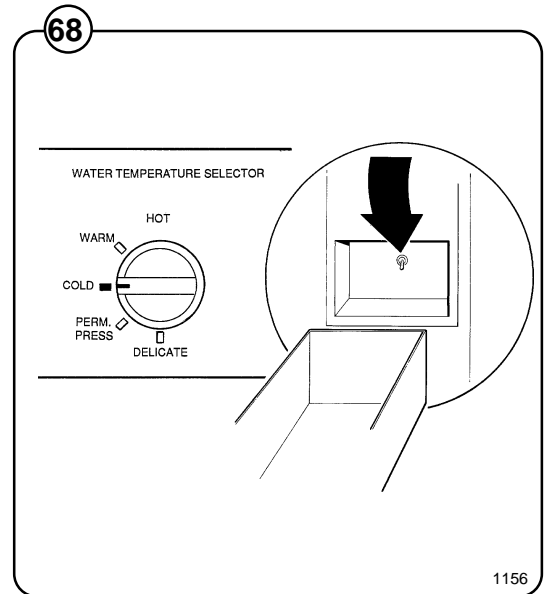
- 1 Flush in detergent compartment 1
- 2 Flush with cold water in detergent compartment 2
- 3 Flush in detergent compartment 3
- 4 Flush with warm water in detergent compartment 2

### Group 3 (COLD)

- 1 Motor, right turn
- 2 Motor, left turn
- 3 Motor, distribution
- 4 Motor, spinning

### Group 4 (PERM PRESS)

- 1 Drain
- 2 Door lock



## Wash Programs

The electronic program memory contains 20 programs divided into 4 groups of 5 programs.

A group can be selected by using the program selector together with a special function selector switch, see section on "Programming".

- Fig. 71** • Group 1 includes the five standard programs HOT, WARM, COLD, PERMANENT PRESS and DELICATE, all with pre-wash and three rinses.

- Fig. 72** • Group 2 includes the standard programs without pre-wash.

- Fig. 73** • Group 3 includes the standard programs but without pre-wash and with only 2 rinses.

- Fig. 74** • Group 4 includes the standard programs but without pre-wash and with only one rinse.

71

### GROUP 1

	HOT			WARM			COLD			PERM PRESS			DELICATE 1)		
	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level
Wash 1	3	Warm	High	3	Warm	High	3	Cold	High	3	Warm	High	N/A	N/A	N/A
Detergent 1															
Drain	1			1			1			1					
Wash 2	6	Hot	Low	6	Warm	Low	6	Cold	Low	6	Warm	Low	4	Warm	High
Detergent 2															
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5					
Rinse 1	1	Cold	High	1	Cold	High	1	Cold	High	1	Cold	High	1	Cold	High
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5			0.5		
Rinse 2	1	Cold	High	1	Cold	High	1	Cold	High	1	Cold	High	2	Cold	Low 2)
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5			1		
Rinse 3	2	Cold	Low	2	Cold	Low	2	Cold	Low	2	Cold	Low			
Detergent 3															
Drain	1			1			1			1					
Extract	4			4			4			2					
Shake-out	0.5			0.5			0.5			0.5			0.5		
Total time (water fill time not included)	24			24			24			22			12		

1) Drum rotation 3 seconds, pause 12 seconds

2) Detergent 3

72

## GROUP 2

	HOT			WARM			COLD			PERM PRESS			DELICATE 1)		
	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level
Wash 2	6	Hot	Low	6	Warm	Low	6	Cold	Low	6	Warm	Low	4	Warm	High
Detergent 2															
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5					
Rinse 1	1	Cold	High	1	Cold	High	1	Cold	High	1	Cold	High	1	Cold	High
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5			0.5		
Rinse 2	1	Cold	High	1	Cold	High	1	Cold	High	1	Cold	High	2	Cold	Low 2)
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5			1		
Rinse 3	2	Cold	Low	2	Cold	Low	2	Cold	Low	2	Cold	Low			
Detergent 3															
Drain	1			1			1			1					
Extract	4			4			4			2					
Shake-out	0.5			0.5			0.5			0.5			0.5		
Total time (water fill time not included)	20			20			20			18			11.5		

1) Drum rotation 3 seconds, pause 12 seconds

2) Detergent 3

0997

73

## GROUP 3

	HOT			WARM			COLD			PERM PRESS			DELICATE 1)		
	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level
Wash 2	8	Hot	High	8	Warm	High	8	Cold	High	8	Warm	High	4	Warm	High
Detergent 2															
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5					
Rinse 1	1	Cold	High	1	Cold	High	1	Cold	High	1	Cold	High	1	Cold	High
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5					
Rinse 2	2	Cold	High	2	Cold	High	2	Cold	High	2	Cold	High	2	Cold	High
Detergent 3															
Drain	1			1			1			1					
Extract	4			4			4			2			1		
Shake-out	0.5			0.5			0.5			0.5			0.5		
Total time (water fill time not included)	19.5			19.5			19.5			17.5			11.5		

1) Drum rotation 3 seconds, pause 12 seconds

0998

74

GROUP 4

	HOT			WARM			COLD			PERM PRESS			DELICATE 1)		
	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level	Time (Min.)	Temp.	Water Level
Wash 2	8	Hot	High	8	Warm	High	8	Cold	High	8	Warm	High	6	Warm	High
Detergent 2															
Drain	1			1			1			1			1		
Extract	0.5			0.5			0.5			0.5					
Rinse 2	3	Cold	High	3	Cold	High	3	Cold	High	3	Cold	High	3	Cold	High
Detergent 3															
Drain	1			1			1			1			1		
Extract	4			4			4			2			1		
Shake-out	0.5			0.5			0.5			0.5			0.5		
Total time (water fill time not included)	18			18			18			16			12.5		

1) Drum rotation 3 seconds, pause 12 seconds

## Program group 1

### Wash program, Hot

**Fig.** After the machine has started and the door automatically locked, the drain valve will close and the hot and cold water valves will open to fill the machine with mixed hot and cold water to the high level determined by the level control.

When this level is reached, both water valves will close. During filling and then through the wash program the drum has a reversing rotation.

At the end of the soak, the drain valve will open, whereafter hot water will fill to the level determined by the level control. At the same time detergent from compartment 2 is mixed with the incoming hot water.

On reaching the low level, the hot water valve will close.

The water level controlled machine will now wash the fabrics for 6 minutes. The machine is then emptied and the first extraction is started.

After this extraction cold water is filled to the high level for the first rinse which lasts one minute, followed by spin extraction for 30 seconds. After the extraction comes the second rinse in cold water, ending with spin extraction, whereafter the third rinse is started. Fabric softener is automatically admitted during the third rinse. The fabrics are rinsed in cold water for two minutes followed by a spin extraction of four minutes duration. Finally there is a shake out for half a minute.

75

	HOT		
	Time (Min.)	Temp	Water Level
Wash 1	3	Warm	High
Detergent 1			
Drain	1		
Wash 2	6	Hot	Low
Detergent 2			
Drain	1		
Extract	0.5		
Rinse 1	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 2	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 3	2	Cold	Low
Detergent 3			
Drain	1		
Extract	4		
Shake-out	0.5		
Total time (water fill time not included)	24		

Wash Program, Warm

**Fig.** On starting the machine, the door will be automatically locked, and the pre-wash will be carried out as previously described, whereafter the main wash is started.

76

As the main wash is started, the drain valve closes, detergent is admitted and mixed hot and cold water is filled to the low level.

On reaching this level, the water valves are closed.

The water level controlled machine will now wash the fabrics for six minutes. The machine is then emptied and the first extraction is started.

After this extraction cold water is filled for the first rinse which lasts one minute, followed by spin extraction for 30 seconds.

After this extraction comes the second rinse in cold water ending with spin extraction, whereafter the third rinse is started. Fabric softener is automatically admitted during the third rinse. The fabrics are rinsed with cold water for two minutes followed by a spin extraction of four minutes duration. Finally there is a shake out for half a minute.

76

	WARM		
	Time (Min.)	Temp	Water Level
Wash 1	3	Warm	High
Detergent 1			
Drain	1		
Wash 2	6	Warm	Low
Detergent 2			
Drain	1		
Extract	0.5		
Rinse 1	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 2	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 3	2	Cold	Low
Detergent 3			
Drain	1		
Extract	4		
Shake-out	0.5		
Total time (water fill time not included)	24		

## Wash Program, Cold

**Fig.** On starting the machine, the door will be automatically lock, the drain valve close, the cold water valve open and the pre-wash carried out as previously described, whereafter the main wash is started.

77

As the main wash is started, the drain valve closes, detergent is admitted and cold water is filled to the low level.

On reaching this level, cold water is closed.

The water level controlled machine will now wash the fabrics for six minutes. The machine is then emptied and the first extraction is started.

After this extraction, cold water is filled for the first rinse which lasts one minute, followed by spin extraction for 30 seconds.

After this extraction comes the second rinse in cold water concluded with spin extraction, whereafter the third rinse is started.

Fabric softener is automatically admitted during the third rinse. The fabrics are rinsed with cold water for two minutes followed by a spin extraction of four minutes duration. Finally there is a shake out for half a minute.

77

	COLD		
	Time (Min.)	Temp	Water Level
Wash 1	3	Cold	High
Detergent 1			
Drain	1		
Wash 2	6	Cold	Low
Detergent 2			
Drain	1		
Extract	0.5		
Rinse 1	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 2	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 3	2	Cold	Low
Detergent 3			
Drain	1		
Extract	4		
Shake-out	0.5		
Total time (water fill time not included)	24		

### Wash Program, Permanent Press

**Fig. 78** On starting the machine, the door will automatically lock, the drain valve close, the hot and cold water valves open and the pre-wash will be carried out as previously described, whereafter the main wash is started.

As the main wash is started, the drain valve closes, detergent is admitted and mixed hot and cold water is filled to the low level.

On reaching this low level, the water valves are closed and the wash motor starts its reversing rotation.

The water level controlled machine will now wash the fabrics for six minutes. the machine is then emptied and the first extraction is started.

After this extraction, cold water is filled for the first rinse which lasts one minute, followed by spin extraction for 30 seconds.

Fabric softener is automatically admitted during the third rinse. The fabrics are rinsed with cold water for two minutes followed by a spin extraction of two minutes duration. Finally there is a shake out for half a minute.

78

	PERM PRESS		
	Time (Min.)	Temp	Water Level
Wash 1	3	Warm	High
Detergent 1			
Drain	1		
Wash 2	6	Warm	Low
Detergent 2			
Drain	1		
Extract	0.5		
Rinse 1	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 2	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 3	2	Cold	Low
Detergent 3			
Drain	1		
Extract	2		
Shake-out	0.5		
Total time (water fill time not included)	22		

## Wash Program, Delicate

**Fig.** On starting the machine, the door will automatically lock, the drain valve closes, the hot and cold water valves open and the main wash is started.

79

As the main wash is started, the drain valve closes, detergent is admitted and mixed hot and cold water is filled to the high level.

On reaching this level, the water valves are closed.

The water level controlled machine will now wash the fabrics for four minutes. In the Delicate wash program the drum rotates for 3 seconds followed by a pause of 12 seconds. The machine is then emptied and the first extraction is started.

After this extraction, cold water is filled for the first rinse which lasts one minute, followed by spin extraction for 30 seconds.

Fabric softener is automatically admitted during the second rinse. The fabrics are rinsed with cold water for two minutes followed by a spin extraction of one minute duration. Finally there is a shake out for half a minute.

79

	DELICATE 1)		
	Time (Min.)	Temp	Water Level
Wash 1	N/A	N/A	N/A
Detergent 1			
Drain			
Wash 2	4	Warm	High
Detergent 2			
Drain	1		
Extract			
Rinse 1	1	Cold	High
Drain	1		
Extract	0.5		
Rinse 2	2	Cold	Low 2)
Drain	1		
Extract	1		
Rinse 3			
Detergent 3			
Drain			
Extract			
Shake-out	0.5		
Total time (water fill time not included)	12		

1) Drum rotation 3 seconds,  
pause 12 seconds

2) Detergent 3

## Service information

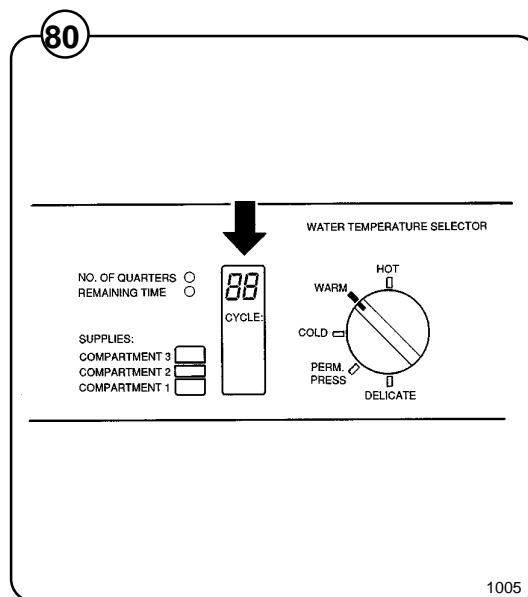
**Fig.** A fault in the program is indicated by a flashing digital code in the window on the front panel.

**80**

### Fault code Cause

LE	Water level not reached. If not coin operated machine, turn on the water tap, press START and the machine will make a new try.
do	Door is open.
dc	Water left in machine after a drain period.
LC	Water in machine at program start.
ub	Unbalance error.
dL	Door lock not operating.
cd	Door not locked. Close the door and the machine will start.

When the machine is ready for use, the main external power supply must be turned "Off" and then "On" again, except for fault LE and cd.



## Maintenance

Preventive maintenance has been reduced to a minimum by the careful design of reliable components and material.

However, the following measures should be taken at regular intervals and in proportion to the hours of service.

### IMPORTANT!

**Make certain that all electrical power to the machine is shut off before removing top or rear panels.**

#### Daily

- Check the door lock and interlock before starting operations.
- The soap supply box should be cleaned at the end of each working day as follows:
  - Use a spatula to scrape loose any detergent which may have stuck on the inside of the dispenser.
  - Flush the loosened detergent with warm water.
  - Wipe dry and leave lid open.

Fig.

81

- Check that the drain valve does not leak and that it opens properly.
- Check that the door does not leak. Clean residual detergent and foreign matter from the door gasket.
- Wipe the outside of the machine.
- When the machine is not in use, leave door slightly open to allow moisture to evaporate.

#### Weekly

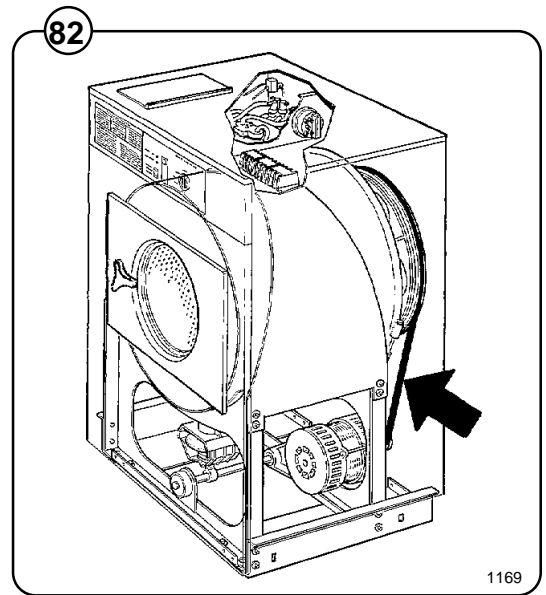
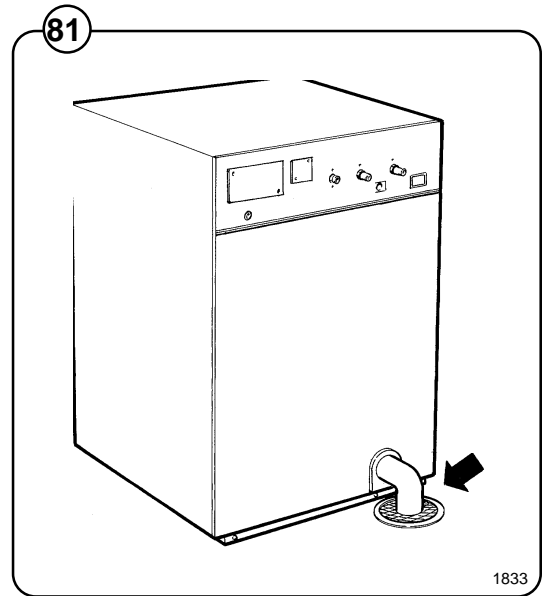
- Remove hose from drain connection and clean inside drain valve.

#### Every three months

Fig.

82

- Remove the cover plates of the machine and check that the V-belt of the wash motor is undamaged and correctly tensioned.
- Check that all tubing, piping and connections are free from leaks.
- Wipe and clean the inside of the machine, making sure that the control components are protected from moisture and dirt during the cleaning operation.



## Trouble shooting

A useful aid in trouble shooting is the ability to check individual switches and level sensors and to control individual functions independently. These techniques are described in the section on "Service Programs".

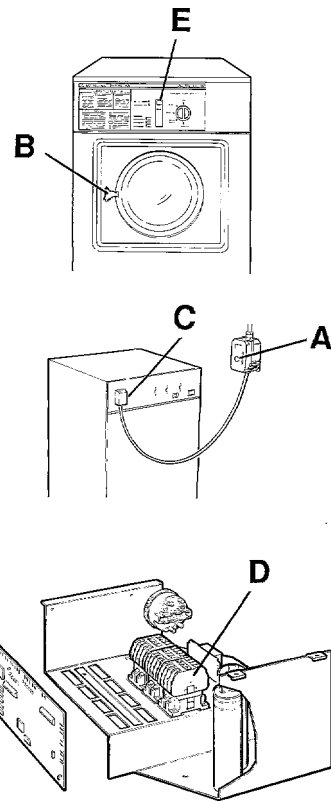
### If machine does not start

- Fig. 83
- A Check circuit breaker in the power feed line to the machine.
  - B Check door safety switches.
  - C Check glass cartridge fuse.
  - D Check electrical auxiliary contact on extract relay.
  - E Check for fault indication on display (see under the heading "Service Information").

### If water does not drain

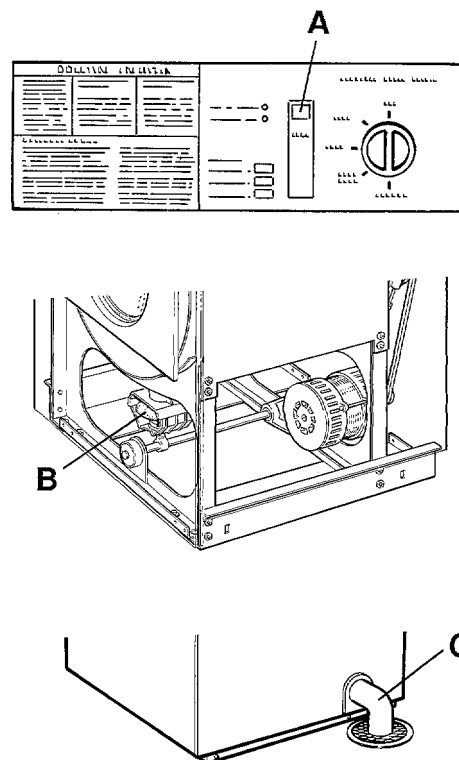
- Fig. 84
- A Check for fault indication on display (see under the heading "Service Information").
  - B Check drain valve for proper operation.
  - C Disconnect drain hose connected to drain line. If full flow of water comes out, the problem is in the main waste line. If water flow is slow, the problem is the accumulation of foreign materials between the drain valve and shell outlet of machine. Clean valve body of any foreign objects found.

83



1170

84



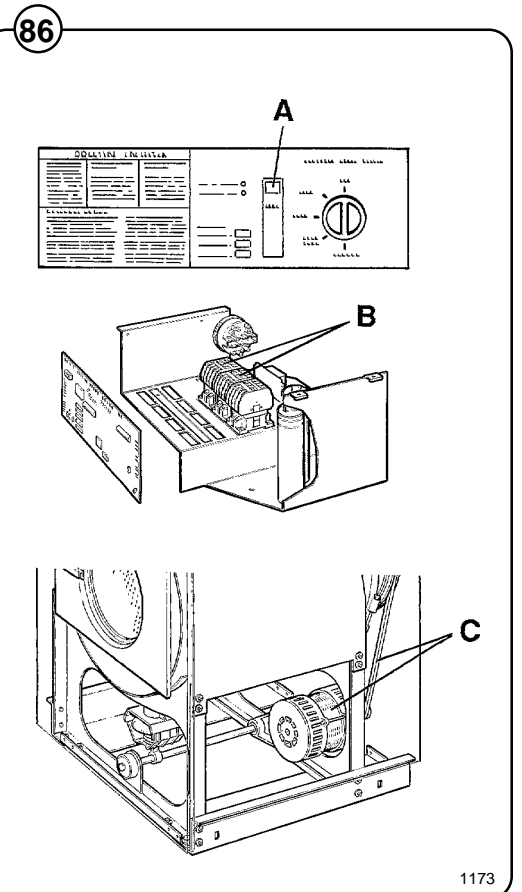
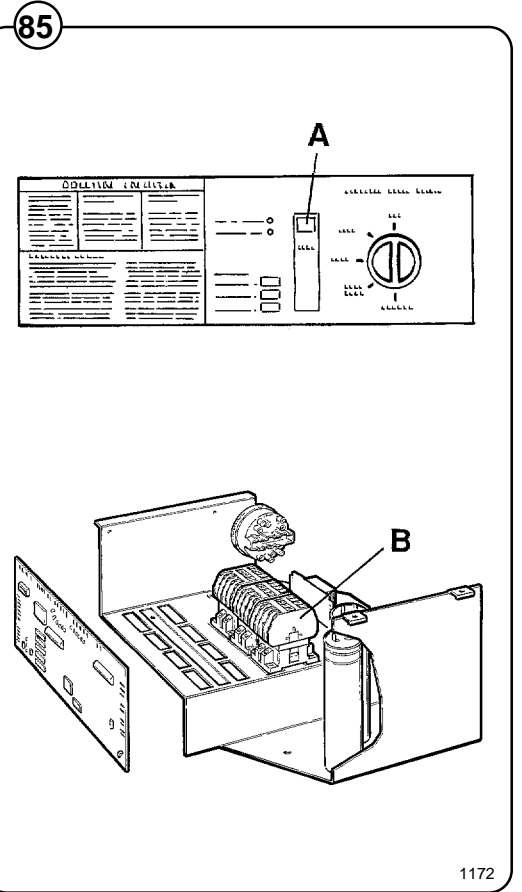
1171

## If machine does not extract

- Fig. 85**
- A Check for fault indication on display (see under the heading "Service Information").
  - B Check extract relay and relay coil for proper operation.

## If motor does not operate at wash speed

- Fig. 86**
- A Check for fault indication on display (see under the heading "Service Information").
  - B Check wash relays.
  - C Check normally - closed contact of extract relay.
  - D Check motor and V-belt.
  - E Review procedures outlined under section "If machine does not start" above.



**If machine runs slowly on wash speed or there is a slapping or thumping noise.**

Fig.

87 A Replace V-belts.

**If a metallic noise can be heard at rear of machine**

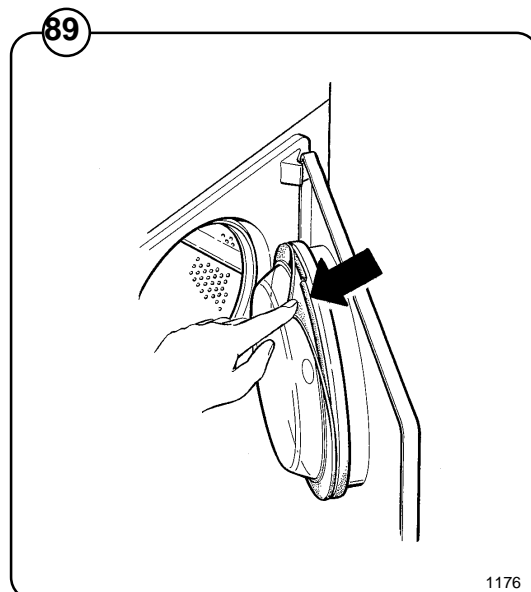
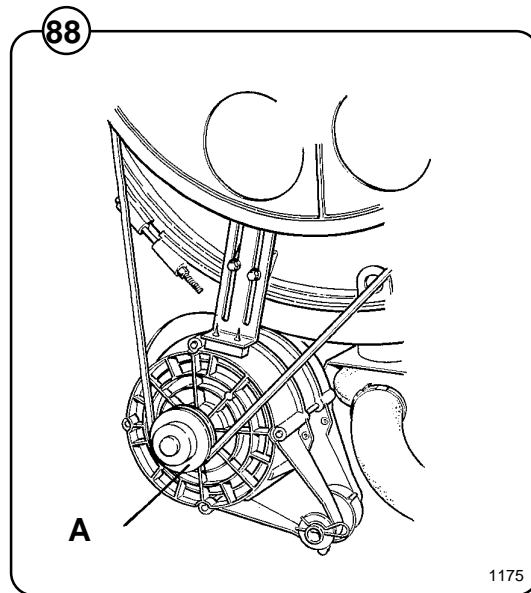
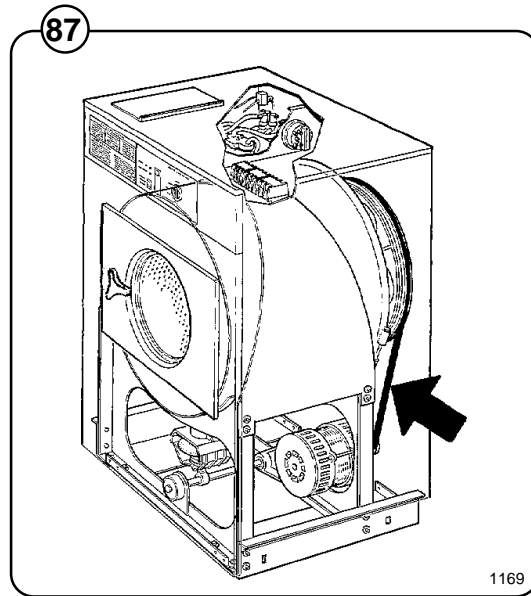
Fig.

88 A Tighten pulley on motor shaft.

**If the door is leaking**

Fig.

89 A Check the door gasket. If the gasket is in good condition, install a 4-7 mm rubber hose seal around the entire gasket, using the slits provided.



## If there is a leaking around the glass

Fig. A Replace door gasket if worn.

90

## If water does not enter the machine

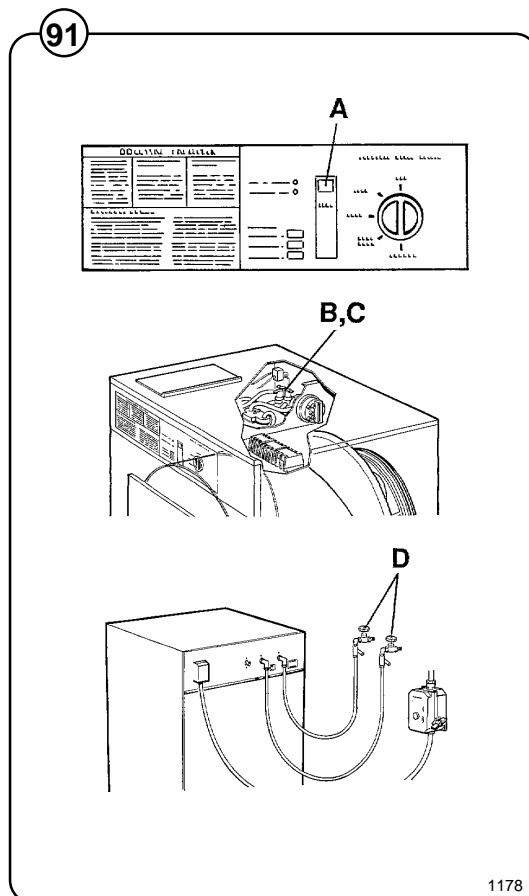
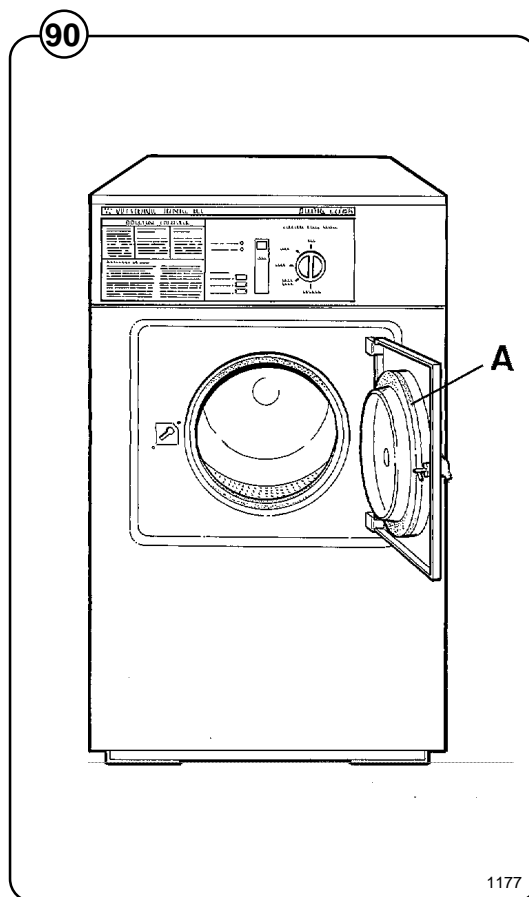
Fig. A Check for fault indication on display (see under the heading "Service Information").

91

B Check the value coils on inlet valves.

C Check wires leading to electric coils.

D Be sure manual shut-off valves are in open position.

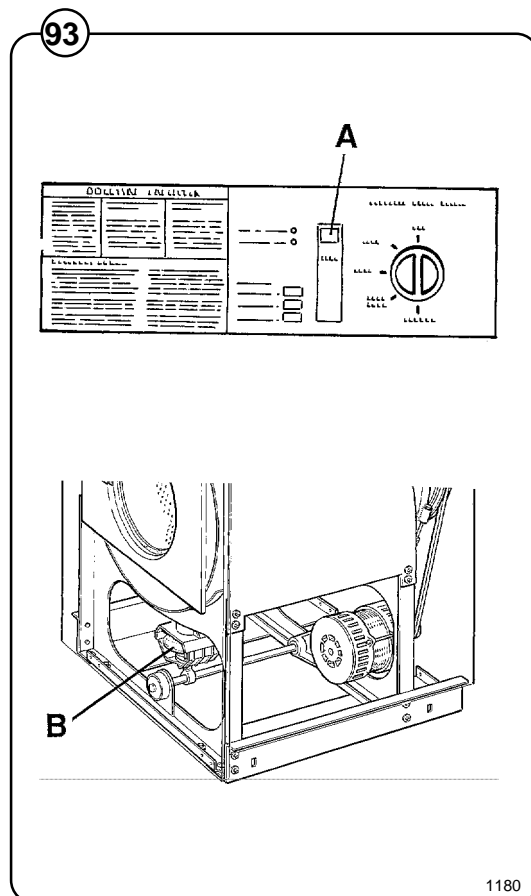
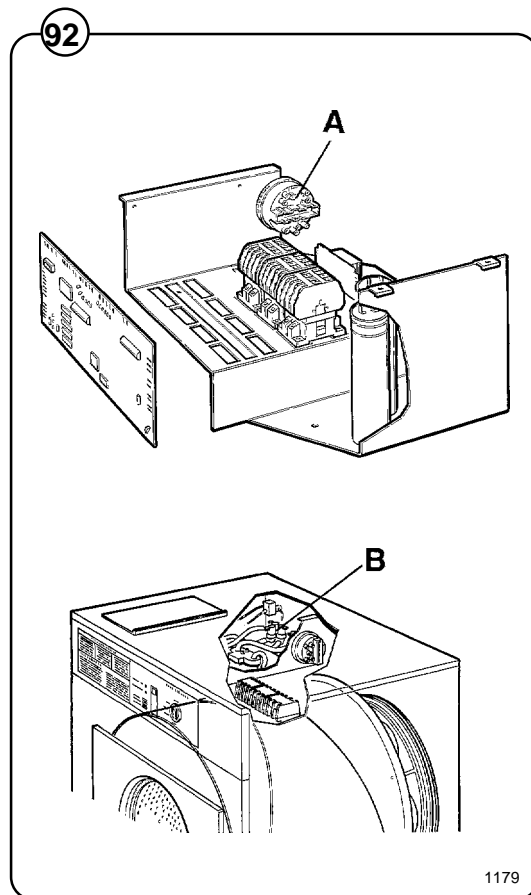


## If water continuous to fill without stopping

- Fig. A Check hose attached to level control unit.
- 92 B Check inlet valves for dirt underneath the valve diaphragm. To localize, shut off power. If water continues to flow, inlet valves have foreign material in them and should be thoroughly cleaned.

## If water continuous to flow without filling machine

- Fig. A Check for fault indication on display (see under the heading "Service Information").
- 93 B Check seating of drain valve.



## If machine vibrates excessively

Fig. Tighten mounting bolts.

94

